



**THE
FIFTEENTH
LACUS
FORUM
1988**



THE FIFTEENTH

LACUS FORUM

1988

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THE FIFTEENTH LACUS FORUM 1988

edited by
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INTRODUCTION

Since its beginnings in 1974, LACUS has used a logo based on a map of the Great Lakes Basin, a major point of contact between Canada and the United States. Looking at this logo, someone with even a rudimentary acquaintance with North American geography would observe that the State of Michigan is quite well outlined there, and might think that the organization had some special connection with that state. But as a matter of fact the first LACUS function ever held in Michigan was the 15th LACUS Forum, which took place on the Michigan State University campus in East Lansing between August 16 and 20 of 1988. While the first two days were held during a heat wave, it was to the relief of many that a cool front passed during the evening following the first full day of papers, bringing pleasant temperatures for the remaining sessions. Throughout the Forum, we were fortunate to have the spacious air-conditioned Kiva of McDonel Hall for all regular meetings.

In this volume, we are happy to be able to publish nearly all of the papers presented during these sessions. They have been arranged under fairly traditional headings, though as usual many would have fit into more than one classification. Following recent custom, we have placed the Presidential Address, Inaugural Lecture, Invited Lecture, and the winner of the Presidents' Prize in a special section at the beginning. Three other papers, runners-up for the Presidents' Prize, were given the Presidents' Commendation, and this fact has been noted after the name of the author in the Table of Contents.

Thanks are due to the many who helped us to hold this conference, whether financially or with their services. In particular, we wish to express our appreciation to Dr. David Scott, Provost of Michigan State University, and Dr. John W. Eadie, Dean of the College of Arts and Letters, who generously allocated funds to help with our expenses. Further well appreciated funds were provided by the Canadian Studies Center and the English Language Center, and by the Departments of English, Psychology, and Romance and Classical Languages as well as by our own Department of Linguistics and Germanic, Slavic, Asian, and African Languages. The secretarial staff of the department were also generous in their assistance both before and during the conference. Several students in our linguistics program were also a great help to us in numerous ways. In particular, we wish to thank Linda S. Rashidi, a doctoral student at Michigan State as well as a member of the faculty of Central Michigan University, who took charge of the Book Exhibit and also helped with transportation, registration, and so forth. Other Michigan State students who helped in various ways were Joel Boyd, Julie Chamberlain, David Kathman, and Timothy Pulju.

Finally, we wish to express our regret that our former student Dr. Michael Eric Bennett was not able to be with us due to his untimely death in October of 1987. He was very much looking forward to this conference, and had he lived he would doubtless have played an important part in running it. We wish to dedicate this volume of the LACUS Forum to his memory.

East Lansing, Michigan
March 1989

Ruth M. Brend
David G. Lockwood

DEDICATED TO THE MEMORY OF

Dr. Michael Eric Bennett

I

SPECIAL LECTURES

1988 PRESIDENTIAL ADDRESS

TOUCHING THE BASES

Carleton T. Hodge

Invocation - Time, O Time, turn back in thy flight!
Make me a linguist again, just for tonight!

The primary task of the linguist is to describe speech activity accurately. In the case of most synchronic descriptive linguistics, the picture drawn is contrived, i.e., the manner in which the actual observed result is obtained is unknowable and the effort is aimed at the creation of an aesthetically satisfying process culminating in this result. Both Swadesh and Voegelin's morphophonemes (1939) and Chomsky's generative rules (e.g., 1965) are illustrations. The portrait is of Imagination Triumphant.

The situation is very different in the case of historical/comparative linguistics. We have fragments of data from temporally and geographically disparate sources. It is like a giant jigsaw puzzle with most of the pieces missing. Our job is to put the extant remnants in the right place and to sketch in the missing ones, reconstructing areas, such as prehistory, where we have no data. The aim is to make as realistic a picture as possible. In a certain sense imagination is out. If our picture is by Corot, we do not want the reconstruction to look like Picasso.

The purpose of this address is to sketch briefly the process used in the comparison of the Lislakh group of languages (LL; Afroasiatic [AAS] plus Indo-European [IE]) and the reconstruction of proto-bases presumably belonging to this remote era. Before beginning this account, a few remarks should be made to put it into context. There are at the present time several attitudes toward comparative linguistics and its reconstructive ability. These are: 1) the nugatory 2) the pangloss and 3) the correspondence course. The first of these simply denies that it is possible to set up sound correspondences and to reconstruct substantial portions of the proto-language. There are at least two types. One is general - no reconstructions can be made. The other is selective - Altaic cannot be reconstructed, Afroasiatic cannot be reconstructed, aut sim. The selectivity may be directional: What you are doing can't be done; what I am doing can. This concludes what we have to say about the nugatory. There must be some belief in the feasibility of achieving a goal for scholars to engage in working toward it. And we need hardly remind ourselves that faith without works is dead (James 2.17).

The other two attitudes are taken by those with faith and who are producing works. The pangloss approach involves the mass comparison of data from many languages and language groups. Sapir was a practitioner, as was his student Swadesh. Belief in the monogenesis of language is a strong influence on this view. As Swadesh said,

If, as the evidence I have studied seems to show, the languages of Middle America are genetically related to each other and to those of the rest of America and possibly of the whole world, there can no longer be any question as to whether languages are related but only as to how closely. (1967:87)

In his diagram The World Linguistic Net, Swadesh presents IE and AAs (his Hamitan) as being separated by at least 6,700 years. PIE itself he dates back to 6,900. This gives 13,600 years for the separation of IE and AAs. This is remarkably close to the date of the dissolution of Munson's AAs group on the Upper Nile, which began separating about 15,000 years ago. (Swadesh's diagram is 1967; Munson's article is 1977.) The present writer has maintained that the IE's were a part of that Upper Nile culture (1981a, 1985). More recent panglossists are Greenberg, Illič-Svityč and Dolgopolsky, to mention only a few. Given proto-North American and proto-Nostratic (pN), can proto-world be far behind? (Cf. Hodge 1976a:51, 62-63.)

The best example of mass comparison that has met with widespread acceptance is Greenberg's classification of African languages (1963). This has also met with criticism, and the hazards of sweeping comparisons are quite clear. As one writer rather bluntly put it, 'the wider the circle of knowledge, the greater the circumference of ignorance' (Dexter 1983:204). In the field of AAs, where I feel best able to judge, there are correspondences in Illič-Svityč's Nostratic which appear unacceptable, i.e., unjustified by a more detailed comparison. For example, Ha(usa) kaamāā 'seize' is related to Eg(yptian) x-m-c. Other data show that Ha. k corresponds to Eg. k, as in the second person masculine suffix pronoun, Ha. -ka, Eg. -k (Ar. -ka, etc.). Further, Illič-Svityč considered the root x-m to be related to Eg. m 'take!', with what appears to be a rather arbitrary dropping (or adding) of k/x (1984:128). The panglossist may say, 'Well, we'll correct those. Just let us know if you find any others'. One gets the impression that for some panglossists the margin of error is of little importance, that the overall presentation is considered to have proved the relationship regardless of the number of false etymological sets included. It is of course true that if 50% are correct, the relationship is established, but who is to say what constitutes the correct 50%? There is too great a temptation to assume relationship of lexical items on the basis of semantic near sameness plus partial formal similarity. Even the panglossist should not rely on the mere possible but should insist on the

probable if he, she or we are to attain, eventually, the demonstrable. As it is, the field is cluttered with the remains of improbable possibles - a true litter-ature.

This is not to say that these efforts should not be made. There is much valuable material in the comparative data assembled. If it were not being done, one would recommend that it be done, for we would like to know how valid, how useful, how reliable the results are which are obtained by these broad comparisons (Hodge 1976a.62-63). We won't know until we painstakingly reconstruct everything in a given area step by step - branch by branch, family by family, phylum by phylum. The complete treatment of a large language group such as Nostratic by both the survey method and by what one may call traditional comparison - though on a vast scale, would be enough to check each method against the other.

The third attitude is the aforementioned traditional one - setting up sound correspondences on the basis of the extant vocabularies of languages thought to be related. This method cannot be said to work in all cases, but it should be applied in all cases. If proper procedure is followed, one reconstructs a proto-language for each branch or sub-branch before working on more distant relationships. This principle is laid down by Greenberg, who says, 'Languages should never be considered in isolation if closer relatives are at hand' (1953.272). A Biblical scholar should be able to distinguish at least two different writers in the Greenbergian canon, a test of the well-known documentary hypothesis.

The existence of the discipline of comparative IE gives one the impression that to do comparative AAs one needs only the admonition, 'Go, and do thou likewise!' (Luke 10.37). The matter is not so simple, in either case. We tend to have a rather stereotyped idea of IE - cooked up in the late 18th century, congealed into a jelly in the early 19th and frozen into shape in the later 1800's. The 20th century gives us the freeze-dried version - much fresher looking, but thawing and thorough cooking are advised before consumption. (Even then, some portions are inedible.) Reading between the laryngeal leaves of this herbage, one realizes that the crying need is for fresh data.

Actually, scholars have stated relationships among IE languages for at least 800 years - the First Grammarian in the twelfth century, Dante in the fourteenth (do you know where linguists are put in the Inferno?), and on to the present day (Robins 1968.165). The First Grammarian has an explicit statement on the monogenesis of language ('languages are all unlike, ever since they parted and branched off from one and the same language') and sees English and Icelandic as basically the same (Haugen 1950.12). We have a sequence of hypotheses, showing the gradual accretion of languages until we reach the present definition of the family. There were setbacks as well as advances. For example, two clay tablets in cuneiform script but

in an unknown language, were found at Tell el-Amarna in 1888. In 1902 Knudtzon identified them as IE. Of this Eduard Meyer wrote in 1914: 'the attempt to characterize the language as Indo-European was a mistaken one, as is now generally recognized' (130 tr.). In 1917 Hrozný published his Hittite grammar, showing conclusively that Knudtzon, who had been forced to recant, was right. Tocharian and the Anatolian languages were the best thing to happen to IE in the past 100 years, as they provided fresh data. Now new relatives are needed to put some flesh and blood on the prehistoric bones of the family skeleton (who apparently died from an attack of laryngealitis). The result, we hope, will be Mummy Revived. The new siblings, or siblings-to-be, are the branches of AAs.

We are all, I trust, true believers in the increment stance rather than the eclipse stance.¹ The first builds on the contributions of previous scholars; the latter holds that 'all other approaches are dead wrong' (N. Chomsky, lecture at Brandeis U., 1963). Anyone following the IE sequencing of hypotheses cannot but be an adherent of the increment stance. We owe an incalculable debt to our predecessors. At the same time, part of the incre- of the -ment is the conviction that all work must be under constant revision. Grateful as we are to those before us, we need to recognize that even in IE comparative linguistics the foundations have been laid with some of the finest stumbling blocks known to scholarship (e.g., the labio-velars, inappropriate anaptyxis). We need to be reminded that 'There is nothing more deceptive than an obvious fact' (Sherlock Holmes in Baring-Gould 1967.2.137).

Since Greenberg's *Languages of Africa* (1963) many linguists have been convinced that AAs is a viable comparative unit - a phylum made up of five or six families. There is no doubt expressed in such reference works as the Voegelin-Voegelin Index (1977) or Comrie's survey (1987). Those of us working in the field usually ignore Marcel Cohen's omission of Chadic (e.g., 1955.184) and the various doubts expressed by others. But objections to our hypothesis must be taken seriously. If we are to reach the level of acceptability enjoyed by established families such as IE or Uralic, we must present AAs - or LL - in a convincing manner. It is not enough to persuade. We see the corpses of accepted theories all about us. We must set up sound correspondences and reconstruct proto-forms in accordance with accepted procedure and in a way in which the data and the conclusions therefrom may be checked at every stage. Where problems cannot as yet be solved, they should be clearly presented as gaps in our reconstruction.

At the First LACUS Forum there was presented a set of postulates for comparative linguistics (Hodge 1975). These were given in the nude, so to speak, i.e., without notes or references. With the correction of one section (Hodge 1980), these are still considered valid. As one works with the material, other

generalizations come to mind, not worthy of the name postulates but deserving our attention. They are not really new; they just need thinking about as we proceed. E.g.

1. One period's loanword is another period's proto-form. This is a caveat regarding the distinction between inherited words and borrowed ones. The dichotomy is, at best, fuzzy. In a sense all language transmission is borrowing (Hodge 1976a.55). No one has any inherent lexicon. In learning to speak one must borrow one's entire vocabulary, including the inter-cultural contact material. Any non-borrowed items, such as idiosyncratic neologisms made up by the speaker, must be accepted, i.e., borrowed, by others if they are to become part of the language. In speaking of genetically transmitted items vs. borrowed ones, the linguist is speaking in terms of temporally disparate points of entry in a continuum of borrowing. This brings us to

2. An ideophone turned phonemic is just another member of the family. In identifying bases common to the phylum, one frequently finds what are called 'roots' described by the literature as onomatopoetic in origin. This is merely an excuse not to do any more work to determine their etymology. Generally speaking, their origin is at a time depth as yet unreconstructable and so is irrelevant to our purpose. Etymological relatives are often at hand.

3. Relatability and reconstruction depend more upon the availability of data than upon the time depth involved. The application of statistics to IE by Kroeber came to the conclusion that 'there comes a point in the past - perhaps 10,000 years ago, perhaps less - at which the [comparative] method no longer yields reliable results' (1960.21). Limits such as this were taken seriously, so that doubts have been raised about the possibility of reconstructing to the time depth of Munson's presumed AAs homeland on the Upper Nile (ca. 15,000 years). This is like Columbus telling Queen Isabella how far it was to America when he was asking for the travel advance. We won't know the time limits of reconstructibility until we try to reconstruct at every possible level. The primary need is for adequate data on as many languages as possible. No amount of theory and no variety of theory can substitute for the data needed to test our hypotheses. As was said in another context, 'The temptation to form premature theories upon insufficient data is the bane of our profession' (Baring-Gould 1967.1.481-82). Our experience is that the more AAs languages become available, the better we recognize their relatability, and the more cognate forms we find.

While we are not searching for them, it is appropriate to add: 4. A universal should be shown to survive continuously through time.

The data for AAs vary greatly in quality, quantity and age. Attestation may be current - go, get a speaker - or may go back

to 3000 B.C. Many languages presently spoken remain undescribed. A great deal of effort has gone into the description of our oldest material - Egyptian and Semitic, but there must be constant re-evaluation of the phonetic values of all written records. Attention to this varies. We are reminded of Chao, who said of his fellow literati in the 1890's, with regard to their classical Chinese, 'The actual sounds were beneath the concern of most of the literary scholars' (1961.171). While things are not as bad as that, in a field as complex as that of Egyptology, there is often reliance on the reference grammar for phonetics when one's interest lies, say, in art history. When a non-Egyptological linguist uses only the grammars, he is likely to be sandbagged by cultural lag. Egyptian is a classical example of how all possible sources must be brought to bear on the reconstruction of its phonology (cf. Hodge 1972). Each source will only take us so far. For example, considerable use has been made of the transcription of foreign words in Egyptian and of Egyptian words in other languages (Edel 1955.47). We are delighted to find the Hittite king Hattusilis written in hieroglyphs and Rameses in cuneiform. The fact that the earliest substantial group of transcriptional material comes a thousand years after the appearance of hieroglyphs is not given its proper weight. Lots of phonetic change can flow over the edge of time in such a period. Valuable as these data are, they must be supplemented by every other source imaginable, including internal variant spelling, syllabic structure and by the very comparative material we are trying to establish (Hodge 1981b).

In the course of the writer's work on AAs several clarifications have been made regarding Egyptian phonetics, such as the consistent reading of the Egyptian vulture hieroglyph (Gardiner 1957 Sign List G1) as a lateral and of single reedleaf (M17) as a glottal stop (Hodge 1977 *inter alia*). Initial cluster resolution in Egyptian often involves a prothetic glottal stop, written with reedleaf (Hodge 1987a). Proper recognition of the role of the prothetic glottal stop is necessary both for the identification of the consonants of Egyptian words and for comparisons with other languages. One need only look at some of the earlier work. What may now be recognized as a prothetic glottal stop was earlier identified as corresponding not only to Semitic ʔ but also to ç, w, y and l (e.g., Vergote 1945.131-33). When scholars trip over their own errors in this way, it becomes difficult to set up defensible sound correspondences.

After polishing some of our phonetics, we look to actual comparison. It has long been recognized that the likelihood of finding genuine cognates is increased by the use of core vocabulary in making the initial matches. As McCurdy put it,

We ought to include only those forms which express common and elementary notions. This must be insisted upon rigorously; and the principle is adopted not only for our guidance, but also as our defence against the

opponents of all attempts at comparison in this obscure region (1881.121).

And he has more such sound advice. 'This obscure region' is the comparison of Indo-European and Semitic. For our comparison a core list of 310 items was compiled, being a blend of a composite Swadesh list (about 220), most of those in Bergsträsser 1928 (about 170; Hodge 1976b) and D. Cohen's 116 word Semitic list (see Hodge 1987b). This was used as a discovery mechanism, not as the basis for a lexicostatistic study.

Perhaps because of the lexicostatistic bias, there has been a tendency to put one lexical item from a given source language for each core word - sort of a 'one word, one vote' kind of pattern. This is unrealistic. One finds several words for 'tooth' in Egyptian or in Chadic Lexical Roots (Jungraithmayr-Shimizu 1981). An idea of the actual complexity may be clearly seen for IE in Buck's Selected Synonyms (1949). The variety found must be entered into our data base. As the work progresses, there is much regrouping of forms which share common semantic content, such as 'tooth', 'bite', 'seize', etc.

We pause here lest one get the impression that the investigation of LL has been a grand triumphal march along the Sahel to the Horn, down the Nile and through the Near East to the Asiatic steppes. It was rather a matter of trial and error, often, early on, repeating others' mistakes in methodology. Somewhere along the line came the decision to make a fresh analysis, leaving till later the assessment and utilization of previous work. It was this fresh start which first used a combined core list (Swadesh and Bergsträsser) and began with the comparison of Egyptian and Semitic as the two oldest attested branches. The cognates found were relatively few, but they were to be relied on. Then material from the other branches of AAs was brought in, providing a small but solid basis for setting up some sound correspondences (Hodge 1981b). Following Greenberg's admonition, reconstructed forms from the various branches were used when available. These were often of sub-branches, such as West Chadic, South Cushitic, East Cushitic, etc. They naturally vary in quality, but it is very encouraging to see how much good work is being done. Ideally one should do everything oneself, but this is not yet feasible.

There is no single comparison of the assembled data. It is necessary to go over the material time and again for different purposes. Recursive is the word that comes to mind. It is on one of the later -curs-es that we re-examine the work of former scholars (or contemporary ones) in the field. We are again reminded of Chao, who said, 'To err is human, to correct is worse' (1961.171).

Let us return in our history to our first pass through the data and the preliminary results. Some correspondences are

regular, b-b-b, d-d-d, k-k-k; others show variants. Egyptian may show f where Semitic has p, or m where Semitic has b, though we know from other examples that Eg. p should correspond to p elsewhere, m to m, b to b. Egyptian has a negative verb t-m. Kapsiki, a Chadic language, has a negative verb d'ema. If so-called feminine t is t in Egyptian and t in Chadic, why does Kapsiki have d? Enter, stage left, indeterminacy.

Previous scholars had little luck solving the problem of variants such as these. They were accepted but not acceptable, as it were. A good example of a study presenting multiple correspondences is Brunner's on Indo-European and Semitic (1969). The problem is similar to the alternations of root consonants familiar to Semitists since the Middle Ages. Nineteenth century dictionaries and grammars often gave examples of these (e.g., Gesenius 1823, 1842, 1844). They might be called 'commutations' (Gesenius 1842.44). Among recent scholars we may quote Moscati:

Homorganic and otherwise like consonants can interchange among themselves... The root k-p 'to bend' can theoretically assume the following forms: k-p, k-b, k-m, g-p, g-b, g-m, q-p, q-b, q-m (1947.132).

Actual forms cited by Moscati include the shapes k-p, q-p, q-b, g-p and q-b (134). Zaborski, on the other hand, gives such variants as separate roots, e.g., *d-k 'to crush, to beat', *d-g 'to crush, to crumble, to break' (1971.58-59). (Fronzaroli [1971.632; 7.33] puts the k and q forms under the same entry.)

Examination of Jungraithmayr and Shimizu's Chadic Lexical Roots (1981) provided the clue to most of these alternations (Hodge 1986.144). The same root might occur with a plain (voiced or voiceless) consonant, with a glottalized one, or with a prenasalized one. It became apparent that we were dealing with at least two frequently occurring proto-affixes, a pharyngeal and a nasal. Reflexes of this threefold pattern are found throughout LL. We may illustrate from Egyptian. The plain labials are p and b. Add (the pharyngeal) H to either, and you get f (probably [ph]). Add (the nasal) N and you get m, presumably simplified from mb. E.g., p-s-? Co. (S) pise 'to cook', f-s-? 'to cook', m-s-w-t 'supper'; b-z 'to bring in', m-z 'to bring, present'. These particular alternations have been labelled 'consonant ablaut' (Hodge 1986, 1987c). Recognition of such sets has vastly reduced the number of multiple correspondences among our lexical items. It has made sense of many previously proposed etymologies, increasing the value to us of our predecessors' work (cf. Hodge forthcoming). The variations in the shape of Moscati's roots no longer frighten us, and many of the rough places in Brunner are made smooth.

The biggest unanswered question is 'What do the pharyngeal and nasal affixes mean?' If these were morphemes - and we assume that they were - they added something to the base, and one should

be able to isolate the semantic differences. Up to now there have been some hints, but no consistent meanings have emerged. We can be confident that they will be identified, but this may take a long time to do. There are frequently other affixes involved (such as s, h, b/mb, t, etc.) which complicate the picture.

Two sample bases with their followers are appended. These are ****k-p** 'hand' and ****k-b** '(sole of) foot'. Taking ****k-p**, we see that a large number of what have ordinarily been referred to as 'roots' are seen to have developed out of this common form. (It would be more appropriate to call them 'fruits'.) These are ordered according to the addition of the ablaut affixes (pharyngeal H and nasal N) to one or both of the consonants of the base. One cannot be sure of the LL base meaning, but it appears to be something like 'the cupped hand', 'the grabby hand' or the like. Many of the derivatives involve 'taking hold of'.

In speaking of the relationship among the roots assigned to a given base, it is convenient to speak of a 'direct correspondence' when the phonemes of the related forms are of the same ablaut. An example is Sem. ***kapp-** 'hand' and IE ***kap-** 'seize', where both have k and p. Eg. **k-f** 'gather', Sem. ***kapp-** and Ch. ***k-m** 'lift, carry' are all diagonal correspondents of each other (one with H, one plain and one with N; see Hodge forthcoming).

With the explanation of so many relationships, one might have drawn the conclusion that the fire-breathing dragon of indeterminacy has been slain. If so, she has left a healthy brood of little dragonettes, living complacently on the consonant ablaut reservation. We recall that Moscati's possibilities involved variation as to voicing: **k-p**, **k-b**, **g-p**, **g-b**. If we look for bases having these shapes, we find them. Not only that, there are some semantic similarities. We seem to have gone to extremities: ****k-p** '(curved) hand', ****k-b** '(sole of) foot' (the second example below), ****g-p** 'horn', ****g-b** 'side, arm'. While it is conceivable that all four of these are in some way ultimately connected, we have at present no reasonable formal basis for putting them together. We must point out, however, that when H or N, or both, are added, some or all of these forms merge. The mergers with **k-p** are shown below (3). All four bases merge if both consonants have an added H or N, in any combination. The shape ****n-m** is therefore ambiguous as to origin, but on semantic grounds one would assign OE **niman** 'to take' to ****k-p** 'hand' (****Nk-Np**) and Gk. **nómas** 'nomadic wandering' to ****k-b** 'foot' (****Nk-Nb**), though the latter could come as well from ****g-b** 'side', which has 'go forward' derivatives.

The assignment of forms to bases is proceeding, albeit slowly. This is evident to those who have heard my previous

presentations of selections therefrom to this august (also August) body. It appears that hundreds of bases are identifiable, i.e., reconstructable, not just for AAs but for LL. IE is an integral part of the picture. It has acquired its much needed relatives, with enormous quantities of fresh - if base - data. It may fairly be claimed that a substantial segment of the proto-language is within our grasp. (The word 'grasp' goes back to the proto-base **g-p 'bite, chew, jaw' extending to 'seize with the mouth', with known reflexes in Egyptian, Chadic, Cushitic and IE. Etc.)

As presently understood, the data do not allow the reconstruction of more than the consonants of the bases. Whether the proto-bases contained inherent vowels, inherent semi-vowels, or were consonantal roots associated with various vowel patterns (in the Semitic manner) remains to be determined. The establishment of any or all of these would not surprise us.

The general similarity of these results regarding biconsonantism with those of Hurwitz in his volume on root determinatives (1966 [1913]) will be apparent to all Semitists. Arguments as to how many consonants made up the early proto-Semitic root have gone on for hundreds of years. While we hold that most LL bases were biconsonantal, we do not wish to be arbitrary. Some bases may have had only one consonant, others more than two. We can only reconstruct what the data support.

A major task still before us is the morphemic identification of the elements affixed to these bases. Some of these, such as s or h, have known semantic content. Others, such as c, r, w, are obscure. Hurwitz recognized this, suggesting that the meanings of many formatives had been lost at a very early period of Semitic (1913.14-15). He also recognized that a number of the formatives were of demonstrative origin and were similar in function to ones still operative in Semitic (107). Lieberman has recently given us a detailed study of one such demonstrative element in AAs, n (1986). We also observe that very familiar affixes, such as the place prefix m-, must be understood as part of a consonant ablaut series. The plain form, b-, then turns up as a recognizable and relatable affix, as in Eg. b-q-s-w 'spine' from Eg. q-s 'bone'. (Compare well-known -bh- and -m- suffixes in IE.)

It would not do to discuss the field of AAs and not mention the imminent publication of Diakonoff's comparative work in this field. A general view of the proto-phonology has been published (Porxomovskij 1987.9-29), but we must await the data before assessing this system. It is far more complex than one would expect, and the judicious application of consonant ablaut will afford some simplification.

Each of our bases must face careful scrutiny, and further details of the developments into the extant forms must be worked out and thoroughly documented. The tentative nature of the

results so far is readily (one might say, tearfully) acknowledged. At the same time it is strongly felt that unless patterns such as consonant ablaut are utilized, the reconstruction of pAAs and pLL, let alone pN, cannot reach a satisfactory level. Only such a system allows us to understand the inter-relationships of the LL phylum and its happy little families.

We read of the Russian theologian Solovjev, how his devotion to his studies directly contributed to his death. We trust that, while we have sought to find a reliable and defensible approach to remote time depth in comparative linguistic reconstruction, we have not let our devotion to this worthy project shorten the years we wish to spend upon it.

To the sceptic - and there probably are such - I recommend the following passage dealing with an indefatigable researcher:

"I can see nothing," said I, handing it back to my friend.
"On the contrary, Watson, you can see everything. You fail, however, to reason from what you see. You are too timid in drawing your inferences." (Baring-Gould 1967.1.453)

NOTE

1. These terms are from Carl Voegelin.

Appendix

1. **k-p '(cupped) hand'

	Egyptian	Semitic	Berber	Chadic	Cushitic	Indo-European
1) kH-p		*kapp- cupped hand	(Touareg ekf give)			*kap- grasp
2) Nk-p		*q-p-s collect (Heb. qōp ape)		(Hausa kʔafāa foot)		
3) k-pH	k-f gather	*n-w-p brandish, shake		*ggaaf throw (Sayanci ɔgap catch)		
4) k-Np		(Akk. kamu:	*kumut collect	*k-m lift, carry (Ha. kaamāa seize)	*kam[m]- seize	*kem- gather *kem- compress (Lith. kumstė fist)
5) kH-pH						*ghabh- seize
6) kH-Np		*q-m-t seize		*kʔ-m hand		
8) Nk-Np						*nem- take

2. **k-b 'sole, foot'

	Egyptian	Semitic	Berber	Chadic	Cushitic	Indo-European
	k-b-w/č-b-w sole, sandal	(Ar. kaba: stumble) (Heb. kebes footstool)	(Touareg ekk- go to) *-siwkih- make go	*k-b(-n) shoe	EC *kob- sandal (Som. kub leg)	(Lith. koja foot) (Skt. kavayi:) *se-kw- follow *kwe-l- move around *kau- humiliate (Hitt. kwaskwas crush)
1) kH-b	č-b-b trample	*k-b-s trample	*k-h-l trample	*k-b break		
		*Ca-qib- heel (Shauri qeb enter)			*kabab- to abuse EC *k'ab- catch *k'eb- break	
3) k-bH	k-f-3 bottom				(Oromo kop'ee shoes)	*kap(h)o- hoof
4) k-Nb		(Akk. kama:ru press down)			(S. Agau čammi foot)	
6) kH-Nb		*q-w-m stand up				(cf. Lat. gamba hoof)
8) Nk-Nb						(Gk. nomas nomadic wandering)

3		**k-p	**k-b	**g-p	**g-b
1.	H -	kH - p		kH - p	
2.	N -	Ng - p		Ng - p	
3.	- H	k - bH	k - bH		
4.	- N	k - Nb	k - Nb		
5.	H - H	kH - bH	kH - bH	kH - bH	kH - bH
6.	H - N	kH - Nb	kH - Nb	kH - Nb	kH - Nb
7.	N - H	Ng - bH	Ng - bH	Ng - bH	Ng - bH
8.	N - N	Ng - Nb	Ng - Nb	Ng - Nb	Ng - Nb

(combinations such as NbH are also possible)

REFERENCES

- Baring-Gould, William S., ed. 1967. The Annotated Sherlock Holmes. 2 vols. New York: Clarkson N. Potter.
- Bergsträsser, Gotthelf. 1928. Einführung in die semitischen Sprachen. Munich: Max Hueber.
- Brunner, Linus. 1969. Die gemeinsamen Wurzeln des semitischen und indogermanischen Wortschatzes. Bern/Munich: Francke Verlag.
- Buck, Carl Darling. 1949. A Dictionary of Selected Synonyms in the Principal Indo-European Languages. Chicago: University of Chicago Press.
- Chao, Yuen Ren. 1961. 'What is Correct Chinese?' JAOS 81:171-77.
- Chomsky, Noam. 1965. Aspects of the Theory of Syntax. Cambridge: M.I.T. Press.
- Cohen, Marcel. 1955. Cinquante années de recherches. Paris: C. Klincksieck.
- Comrie, Bernard. 1987. The World's Major Languages. New York: Oxford University Press.
- Dexter, Colin. 1983. The Riddle of the Third Mile. New York: St. Martin's Press.

- Edel, Elmar. 1955. Altägyptische Grammatik. Vol. 1. (Analecta Orientalia 34). Rome: Pontifical Biblical Institute.
- Fronzaroli, Pelio. 1964-1971. 'Studi sul lessico comune semitico, I-VII'. RALinc, Series VIII, 19:155-72, 243-80; 20:135-50, 246-69; 23:267-303; 24:285-320, 26.603-42.
- Gardiner, Alan H. 1957. Egyptian Grammar. 3rd ed. London: Oxford University Press.
- Gesenius, Wilhelm. 1823. Hebräisches und chaldäisches Handwörterbuch über das Alte Testament. 2nd ed. Leipzig: Friedrich Christian Wilhelm Vogel.
- _____. 1842. Hebrew Grammar. Tr. [with supplements] by T. J. Conant. 3rd ed. Boston: Gould, Kendal and Lincoln.
- _____. 1844. A Hebrew and English Lexicon of the Old Testament. Tr. by Edward Robinson. New ed. Boston: Crocker and Brewster.
- Greenberg, Joseph H. 1953. 'Historical Linguistics and Unwritten Languages' in Anthropology Today, ed. by A. L. Kroeber, pp. 265-86. Chicago: University of Chicago Press.
- _____. 1963. The Languages of Africa. IJAL 29:1 (Part II). (IUPAFL, 25) Bloomington: Indiana University.
- Haugen, Einar. 1950. First Grammatical Treatise. (Language Monograph, 25) Baltimore: Linguistic Society of America.
- Hodge, Carleton T. 1972. 'Sources of Historical Linguistic Evidence', in Studies in Linguistics in Honor of George L. Trager, ed. by M. Estellie Smith, pp. 87-99. The Hague: Mouton.
- _____. 1975. 'A Set of Postulates for Comparative Linguistics'. The First LACUS Forum 1974, ed. by Adam and Valerie B. Makkai, pp. 209-16. Columbia: Hornbeam Press.
- _____. 1976a. 'Lisramic (Afroasiatic): an Overview', in The Non-Semitic Languages of Ethiopia, ed. by M. L. Bender, pp. 43-65. (Committee on Ethiopian Studies, Occasional Papers, 5) East Lansing: African Studies Center, Michigan State University.
- _____. 1976b. 'An Egypto-Semitic Comparison'. FO 17:5-28.
- _____. 1977. Review of John B. Callender, Middle Egyptian. Lg. 53:930-40.

- _____. 1980. Review of Robert J. Jeffers and Ilse Lehisté, Principles and Methods for Historical Linguistics. Forum Linguisticum 5:262-73.
- _____. 1981a. 'Indo-Europeans in the Near East'. AnL 23:227-44.
- _____. 1981b. 'Comparative Evidence for Egyptian Phonology', in Studies Presented to Hans Jakob Polotsky, ed. by Dwight W. Young, pp. 401-13. East Gloucester: Pirtle and Polson.
- _____. 1985. 'Were the Rekhyt Indo-Europeans?' Discussions in Egyptology 2:13-23.
- _____. 1986. 'Indo-European Consonant Ablaut'. Diachronica 3.143-62.
- _____. 1987a. 'Lis lakh Cluster Resolution'. AnL 29:91-104.
- _____. 1987b. 'The Status of Lisramic (Hamito-Semitic) Sound Correspondences', in Proceedings of the Fourth International Hamito-Semitic Congress, ed. by H. Jungraithmayr and W. W. Müller, pp. 11-24. Amsterdam: John Benjamins.
- _____. 1987c. 'Consonant Ablaut in Indo-European', in The Thirteenth LACUS Forum 1986, ed. by Ilah Fleming, pp. 591-99. Lake Bluff: LACUS.
- _____. forthcoming. 'Etymological Reassessment.' Proceedings of the Fifth International Hamito-Semitic Congress, Wien, 1987.
- Hrozný, Friedrich. 1917. Die Sprache der Hethiter. (Boghazköi-Studien, 1). Leipzig: J. C. Hinrichs.
- Hurwitz, Solomon Theodore Halévy. 1966 [1913]. Root-Determinatives in Semitic Speech. (Contributions to Oriental History and Philosophy, 6) New York: AMS Press.
- Illič-Svityč, V. M. 1984. Opyt Sravnenija Nostratičeskix Jazykov. Sravnitel'nyj Slovarj (p-q), ed. by V. A. Dybo. Moscow: Nauka.
- Jungraithmayr, Herrmann and Kiyoshi Shimizu. 1981. Chadic Lexical Roots. II. Tentative Reconstruction, Grading, and Distribution. (Marburger Studien zur Afrika- und Asienkunde, A-26) Berlin: Dietrich Reimer.
- Kroeber, A. L. 1960. 'Statistics, Indo-European, and Taxonomy.' Lg. 36.1-21.
- Lieberman, Stephen J. 1986. 'The Afro-Asiatic Background of the Semitic N-Stem: Towards the Origins of the Stem-Afformatives of the Semitic and Afro-Asiatic Verb'. BO 43.577-628.

- McCurdy, James Frederick. 1881. Aryo-Semitic Speech: A Study in Linguistic Archaeology. Andover: Warren F. Draper.
- Meyer, Eduard. 1914. Reich und Kultur der Chetiter. Berlin: Carl Curtius.
- Moscatti, Sabatino. 1947. 'Il Biconsonantismo nelle Lingue Semitiche'. Biblica 28:113-35.
- Munson, Patrick J. 1977. 'Africa's Prehistoric Past,' in Africa, ed. by Phyllis M. Martin and Patrick O'Meara, pp. 62-82. Bloomington: Indiana University Press. (Revised edition, 1986)
- Porxomovskij, V. Ja. 1987. Afrikanskoe Istoričeskoe Jazykoznanie Problemy Rekonstrukcii. Moscow: Nauka.
- Robins, R. H. 1968 [1967]. A Short History of Linguistics. Bloomington: Indiana University Press.
- Swadesh, Morris. 1967. 'Lexicostatistic Classification,' in Linguistics, ed. by Norman A. McQuown, pp. 79-115. (Handbook of Middle American Indians, Vol. 5) Austin: University of Texas Press.
- Swadesh, Morris and C. F. Voegelin. 1939. 'A Problem in Phonological Alternation.' Lg. 15.1-10.
- Vergote, J. 1945. Phonétique historique de l'égyptien. Les consonnes. (Bibliothèque du Muséeon, 19) Louvain: Muséeon.
- Voegelin, C. F. and F. M. 1977. Classification and Index of the World's Languages. New York: Elsevier.
- Zaborski, Andrzej. 1971. 'Biconsonantal Verbal Roots in Semitic.' ZNUJ 269.51-98.

INAUGURAL LECTURE

FIFTY YEARS OF LINGUISTICS

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In this talk I want to tell you about some of the different persons, books, theories, and experiences that have influenced my view of linguistics during more than half a century. In part, these influences reflect changing attitudes, fashions, theories in the field.

My own interests and experiences cover a wide range, including general linguistics, phonetics, phonology, dialectology, comparative linguistics, translation theory, language teaching, Caucasology. At first I thought it would be best to follow each of these interests as separate strands of experience. But the strands are so interwoven that I found this impossible. So, at the risk of being embarrassingly egocentric, I will make this a strictly autobiographical talk, simply recounting my own journey through the Wonderland of Linguistics.

I might begin, like the early novelists, by saying, "I was born in the year 19-- in the pleasant city of E---". But such reticence is out of fashion. The year was 1917, and the city was Edinburgh, the capital of Scotland.

My father was English, and his pronunciation was a fairly pure RP. My mother was Scottish, and had, as we say, "a guid Scots tongue in her heid". As I grew up in Scotland, I have always felt myself more Scottish than English. Holidays in several parts of Scotland, and with relatives in various parts of England, exposed me from an early age to numerous dialects and probably influenced my pronunciation, which became a somewhat mixed one, of which more later.

I was, I believe, a normal boy of the period, that is to say, by the age of 9 or 10, I had acquired a passionate and rather well-informed interest in railways, and particularly in steam locomotives. By the time I was 12 or 13 I was quite knowledgeable on the dynamics of steamflow through the steam-pipes, valves and cylinders of steam locomotives, and this interest was later transferred to the flow of air through the windpipe and the glottis-valve of the human vocal tract. Like many children (as I

believe) I was interested in classification--collecting things and arranging them in groups of like with like. (I was a taxonomist, in fact, without knowing the word--and, of course, long before "taxonomy" had become a dirty word in linguistics.) I was particularly interested in the different ways in which different railway companies classified their steam locomotives. Both of these interests--aerodynamics and taxonomy--came together in a paper, *On the Classification of Stop Consonants*, that was published some years later, when I was 22.

So, then, I was a normal boy, with rather serious engineering interests up to the age of 14, but not without some interest in language. For one thing, at the Royal High School of Edinburgh, they started us on both Latin and French at the age of 11: for another, somewhere about the age of 13 I invented a miniature language: but I don't recall ever persuading anyone else to learn it (I used it in my diary for a time).

In the year 1931, however, when I was 14, something happened which was to shape the rest of my life. My parents took me to see a stage performance of Bernard Shaw's *Pygmalion*.

I was enormously impressed, in Act I, by Professor Higgins' amazing ability to spot where people came from on the basis of their speech, and to record and reproduce details of their pronunciation. When a bystander draws the attention of the flower girl, Liza Doolittle, to the fact that Higgins has been taking down her words, she asks Higgins to show her what he has written. He does so, and she complains, "That ain't proper writing. I can't read that". "I can," replies Higgins, and reads, reproducing her pronunciation exactly, "Cheer ap, Keptin; n' baw ya flahr orf a pore gel".

I was particularly impressed by the fact that this ability was clearly not just some kind of intuitive party trick, but was evidently based on scientific analysis, as Higgins himself reveals, when asked how he does it: "Simply phonetics. The science of speech". And it clearly included the use of some kind, or kinds, of special notation for the sounds of speech, as the incident with Liza showed.

The kinds of notation are made explicit in Act II. Here Higgins is showing Colonel Pickering around his laboratory, when his prim housekeeper, Mrs Pearce, announces the arrival of a young woman (actually Liza) with what she refers to as a "dreadful" accent. "This is rather a bit of luck," says Higgins, enthusiastically. "I'll show you how I make records. We'll set her talking; and then I'll take it down first in Bell's Visible Speech; then in Broad Romic; and then we'll get her on the phonograph...."

The enthusiasm engendered by *Pygmalion* might well have led to nothing, had it not been decisively reinforced by an incident that took place a few days later. While I was browsing through a box of second-hand books outside an Edinburgh bookshop, my

attention was caught by a title:

A PRIMER OF PHONETICS
BY HENRY SWEET

As I skimmed through the slim volume my eye was suddenly arrested by references to "Broad Romic"--the very thing that Higgins had talked about--and also by mysterious, exotic, symbols, which could only be Visible Speech. Then, suddenly, on page 79, a page studded with visible speech symbols and with what appeared to be technical descriptions of vowels, my eye was caught by references not only to what Sweet called "Scotch", but actually to a detail of Edinburgh pronunciation, compared with that of American English, North English, and Cockney--all expressed in the mysterious symbols of visible speech.

This was tremendously exciting--an experience like that of Keats on first looking into Chapman's *Homer*. Here were precise descriptions and symbolizations of dialectal pronunciations, and the whole small volume appeared to be about how to analyse, describe, and classify the sounds of speech. Obviously, this was the key to those wonderful feats of Professor Higgins!

So I went inside and bought the book, and for the next few years Sweet's *Primer* was my constant companion. I read and reread it, assiduously articulating all the sounds referred to in it, both aloud and very often silently, so that I learned to analyse the motor sensations that accompanied all kinds of articulations. At the same time I acquired facility in transcribing sounds in both Visible Speech and Broad Romic.

The *Primer*, in fact, became my Bible, and as is the way with bibles, I extracted from it, not only knowledge, but also at least one moral or ethical principle. On page 3, Sweet wrote, "Avoid...all dogmatism and hasty generalizations...." It is true that Sweet placed this admonition within a quite specific context; but I adopted it as a kind of general ethical precept, by which to live. Of course I didn't always live up to it, but I tried. And to this day it still influences my behaviour and my attitudes.

So you can imagine how pained I was by those linguists in the 1960s whose work seemed to be shot through and through with just those things: dogmatism and hasty generalizations. However, that is to anticipate.

For the next year or two, though I still revered Sweet, I searched the Public Library for any books it had on Phonetics and thus became acquainted with Daniel Jones' *Outline of English Phonetics*, Ida Ward's *Phonetics of English*, Noël-Armfield's *General Phonetics*, and others that used IPA transcription, to which I eventually transferred my allegiance.

In 1933, I had the good fortune, through a family friend who was a retired London University professor of African languages, to get to know Daniel Jones--DJ, as everyone called him, and as I came to call him later.

I visited DJ at University College in London, and he put me through a short examination in practical phonetics, asking me to pronounce all manner of sounds. I recall that these included back unrounded vowels, ejectives and implosives. I passed the test. Then he said to me, "You know, Catford, you have a rather mixed accent. If you are going to go in for phonetics, you will probably find yourself sooner or later having to teach English to foreigners. For that purpose you should speak RP". He was right, of course, on all counts. I had a mixed accent. Eight years later I did find myself teaching English overseas. And in those days RP was *de rigueur* for that purpose, chiefly because virtually all the British TEFL textbooks (including DJ's own books, the *Outline*, his *Pronouncing Dictionary* etc.) represented pronunciation by means of phonetic transcriptions of RP. Thereafter I assiduously studied and practised Received Pronunciation and became completely fluent in a variety of RP that was sufficiently genuine to satisfy the BBC.

What was DJ like? He was very friendly and helpful to me, but he gave the impression of being a rather austere and passionless person. In this respect he was completely different from Firth, who was ebullient and lively and capable of impassioned outbursts in the middle of a lecture--something that would have been quite alien to DJ. I remember Firth once, lecturing about the necessity of theory, referring to people (missionaries and the like--not trained by Pike!) going to some exotic place and saying they'd "pick up" the language when they got there. "What d'they think they're going to pick it up with" was Firth's impassioned exclamation, "if they haven't got any theory?" But DJ was an immaculate phonetic performer; he had extremely skillful vocal organs, including remarkably supple and mobile lips. And yet his reading of phonetic transcriptions of exotic languages, though technically perfect, somehow lacked the realistic liveliness that Firth could achieve (especially in Indian languages).

The following Summer, 1934, I took a course in French Phonetics at University College, London University. My teachers included Mlle. Coustenoble and Lilius Armstrong--the coauthors of a well-known book on French Intonation (which had not yet been published), Miss Armstrong also being the author of what I still think is the best practical introduction to French phonetics, for British students at least (since it compares French sounds with British English ones).

While I was at U.C., DJ gave me private instruction in the Cardinal Vowels and in Urdu phonetics, which satisfied my interest in Indian languages. I also had my first introduction to

instrumental phonetics in visits to the phonetics laboratory presided over by Stephen Jones (no relation of DJ).

All this time I was constantly transcribing whatever dialects and foreign languages I came upon in the course of vacations, on the radio, and at the "Cosmopolitan Club", an informal weekly gathering in the home of a senior University lecturer who, like my family, was an internationally minded Quaker. There I met speakers of many languages, and whenever possible I would persuade them to let me analyse and transcribe their speech. I still have a small notebook of that period, with notes and samples of Dutch, Serbo-Croatian, Japanese, Afghan Persian, Sindhi, and Telugu, as well as many dialects of English.

During the mid-thirties, on account of my phonetic activities, together with some histrionic experience in amateur dramatics, I was persuaded to have an audition at the BBC. To my great surprise, I immediately began to get contracts to participate in radio plays, and thus began a long association with that institution, and with broadcasting in general. I specialized in exotic accents, but as I mentioned earlier, was also able to satisfy the BBC's requirement of RP, particularly during those periods when I worked as a temporary announcer. I suspect the requirements now are much less stringent, but in those days announcers were expected to speak RP and to be able to accurately pronounce at least French, German, and Italian.

In 1935 I was asked by the lady who ran the BBC radio *Children's Hour* to give a talk on Scottish dialects. I did this, illustrating it with live informants from Glasgow, from the Border country south of Edinburgh, and from Buchan in the North East. After the talk I received an invitation from the secretary of the Scottish Anthropological Society to talk to his learned group on the subject. I replied that I was only an 18-year-old schoolboy, so couldn't possibly address such an august body. However, my reluctance was overcome and I did it. I subjected my audience to a good deal of phonetics, and I advocated the making of a Linguistic Atlas of Scotland (I had learned a good deal about linguistic geography in my random reading on linguistics, as well as having made numerous notes on Scottish dialects). Little did I know that 20 years later I would be working full time on the Linguistic Survey of Scotland and that eventually the Linguistic Atlas of Scotland, which I had proposed, would become a reality. In this same year, incidentally, a text that I had transcribed in a South Scots dialect was published in *Le Maître Phonétique*, as the journal of the International Phonetic Association, of which I was now a member, was then called. This was my first phonetic publication.

By now my interests had broadened to a general concern with languages and linguistics. That came about largely in this way.

In the mid-thirties, we acquired a fairly powerful medium-wave and long-wave radio receiver, and I used to sit up at night twiddling the knobs and pulling in signals from all over Europe, and sometimes beyond. This was an exciting pastime in itself, but in addition it was all grist to the phonetic mill, since I used to transcribe snippets of foreign languages that I heard in this way.

To be able to identify foreign stations, I had acquired a little book that gave details--wave-lengths, frequencies, transmission times, call-signs, etc.--of every radio station in Europe. As a further aid to identification it also told how they said *Good night*. I noticed at once that we had one group of stations that said *good night*, *Gute Nacht*, *Gud nat*, etc., another that said *bonne nuit*, *buona notte*, *buenas noches*, *noapte buna* and so on. "Goshi!" I said to myself. "You can put these into groups, you can classify them! I wonder what the story is behind that?" (Taxonomy again!)

So I went to the Public Library and got out what books I could find on language and linguistics, starting with the 19th century Max Müller's *Lectures on the Science of Language* and going on to Jespersen's *Language* and a book published in Calcutta in 1932, Tareporewala's *Elements of the Science of Language*, a very satisfactory book for me, because, though now old fashioned, it gave a detailed typological and genetic classification of languages of the world, with considerable detail on the languages of India, which specially interested me. Graff's *Language and Languages* also contributed to my linguistic education. At Christmas of the same year I received another book, as a gift from my parents, which impressed me greatly and for a time had considerable influence on my thinking about linguistics: this was Bloomfield's *Language*.

In the Summer of 1935 I went to Paris for about a month to consolidate my pronunciation and to increase my fluency in French. It speaks well for the influence of Sweet's *Primer*, and the instruction I had received at University College, not to mention the excellent teaching, by Scottish teachers who spoke fluent near-native French, at the Royal High School, that the French people I lived among and spoke with, generally took a considerable time to discover that I was not French.

Incidentally, that prompts a comment of a "then and now" type. In those days, at least in British Universities, it was assumed that any student of French would learn to speak the language with a virtually perfect French accent. Applied phonetics, with intensive articulation practice and ear-training played a crucial role in this. It seems to me that this concern for near-native pronunciation is much less evident today.

During my short sojourn in Paris I traveled out to Bourg la Reine to visit Paul Passy, the famous French phonetician and one

of the founders of the IPA. He was quite old then, and received me graciously in *pantoufles*, and offered me tea, which we had with frequent interruptions from a little granddaughter. The only phonetic advice that I remember him giving me was to use a tongue tip trill rather than a uvular r. This reflected his life-long devotion to militant Christian Socialism, which made him more partial to peasants and peasant speech than to city dwellers and city speech.

Also, in London that summer, at the invitation of DJ, I was able to look in at a gathering of the Second International Congress of Phonetic Sciences, where I had the pleasure of briefly meeting, amongst others, Otto Jespersen whom I remember as a tall thin very courteous and friendly man, and H. E. Palmer, author of the well-known *Grammar of Spoken English*, *English Intonation*, *The Principles of Romanization* (on Japanese phonology), and of some extremely important works on language teaching (e.g., Palmer 1917 and 1921). He had lived for many years in Japan, and what struck me most about him was that he had acquired a Japanese cast of countenance.

After my sojourn in France, I entered the University of Edinburgh, where I specialized in French. The program included courses in Comparative Romance, Old French, the History of the French language, etc. The Professor (in those days at British Universities every department had only one professor, who was head of the department and a very exalted person) was the distinguished Romance scholar, John Orr, who had studied linguistic geography with Gilliéron, and this, too, chimed in well with my interest in dialects.

As part of the French program I had to spend an academic year in France--as "assistant d'anglais" at a French lycée. The luckiest participants in this exchange program were placed in Paris. I was fairly lucky, since I got the Collège de Meaux, only a forty-minute train ride from Paris. My duties as assistant were very light, so I could go to Paris nearly every day. Consequently, I was able to take the course for the Diplôme de phonétique at l'Institut de Phonétique of the University of Paris. This included historical Romance phonetics from the Director, M. Fouché, and experimental phonetics, in the laboratory, presided over by Mlle. Durand.

The institute did possess a cathode-ray oscilloscope, but I don't remember it ever being used. Most of our lab work was done with the kymograph, and with false palates, which we manufactured ourselves: taking an impression of the palate and then moulding a false palate from layers of damp filter paper which then had to be varnished.

With the kymograph a very light-weight recording point traced lines on smoked paper wrapped round a clockwork-driven drum. The recording point (we made them of tiny

celluloid tips glued to the end of a straw) was glued to the rubber diaphragm of a "tambour"--a small drum about one to two inches in diameter. A tube leads air from a mouthpiece, or other attachment, to the tambour; variations of air pressure in the tube and tambour, cause the diaphragm to move, these movements being transmitted by the recording point to the moving smoked paper. For permanent records, kymograph tracings had to be fixed, by dipping the long, smoke-blackened sheets into a solution of shellac and alcohol. What with black soot, and the varnishing of kymograms and false palates, in those days, you really got your hands dirty in a phonetics laboratory, and everybody had to wear a *blouse* or lab coat.

Everyone working for the Diplôme had to write a "mémoire" reporting a piece of research carried out in the lab. Mine had the grandiose title *Etude expérimentale des voyelles [i] et [u] de l'anglais, avec une contribution à la théorie de la diphtongaison spontanée*. It was, in part, a refutation of Fouché's theory of diphthongization which (over simplifying) claimed, apparently as a universal, a decreasing "tension" (not clearly defined) of the tongue during the emission of a vowel. The latter part of the vowel would thus be "weak", the lax tongue sliding away, as it were, from its earlier position, or else (on account of its "weakness") being subject to any general articulatory tendency of the language.

My contention was that patterns of "tongue-tension" during vowels were language-specific, and that English and French differed in this respect. I recorded the movements of the tongue in articulating the vowels *i* and *u* in English and French--done by resting a small rubber bulb on the tongue, fitting into the concavity of the hard palate, and connected by a tube to the kymograph tambour. This was a remarkably effective apparatus, and indeed showed a very striking difference between the English and French forms of articulation of these vowels. For the English vowels the tongue showed increasing raising, or tension, normally reaching its peak, in words like *heap* and *hoop*, only after the final consonant had been formed. In French, on the other hand, the tongue would suddenly rise to its maximum extent at the beginning of the word and then slacken off, exactly as Fouché claimed. Of course, this was a very inconclusive study since it was based on only one or two informants.

Unfortunately, in those days we had no xerox machines and the single, hand-written, copy of my mémoire has disappeared. I recently made a search for it with the assistance of the present Director of the Institut, but though several of my contemporaries' mémoires are still there on the library shelves, mine has mysteriously vanished--probably borrowed and not returned long ago.

Outside of the Institut I also took a short course on "les enquêtes linguistiques"--what we would now call "field methods"--by the famous Marxist linguist Marcel Cohen. This was interesting, but much more important for my intellectual development, were a few lectures that I attended, given by a brilliant young French scholar, André Martinet, on *La phonologie*. These lectures impressed me very much, and were indeed something of a revelation.

At that time I was, of course, well acquainted with the phoneme according to DJ, or the "Joneme" as it was sometimes irreverently called. Jones had got the idea of the phoneme directly from the Russian linguist L. V. Shcherba, about the turn of the century, and Shcherba had got it from his teacher, Baudouin de Courtenay. Jones defined the phoneme as "a family of sounds consisting of an important sound of the language...together with other related sounds which take its place in particular sequences". DJ mentioned, but did not emphasize that phonemes have a differentiative function in the structure of a language: "the distinctive elements of language, that is the elements which serve to distinguish one word from another are the phonemes, not the sounds". But there was little emphasis on system or structure. And much the same was true of the Bloomfieldian phoneme, which I also knew about.

I was well aware of all that, but Martinet opened my eyes to a view of the phonology of a language as a system--a network of interrelated and interdependent elements, linked or opposed to each other by series of correlations. From him, also, I learned about the Praguian concepts of marking and functional load, which had a considerable influence on my later work. In short, it was Martinet who opened my eyes to the glories of European structuralism and functionalism. I was the more receptive to all this because I had just received as a twenty-first birthday present from some of my fellow students a copy of de Saussure's *Cours*.

The Cercle linguistique de Prague was very much *the thing* in linguistics in those days, and a small group of us students used to meet in the evenings in the Café Capoulade, at the corner of the Boule Mich and the rue Soufflot. We called ourselves "Le cercle linguistique de Capoulade", and discussed all manner of questions of phonetics, phonology, and linguistics. Sometimes we were joined by Professor Fouché, and our group included the now distinguished Swedish linguist and phonetician, Bertil Malmberg, and, a much older member, who was already a well-known Romance scholar, Angel Rosenblatt of Ecuador.

The culmination of my year in France was the third International Congress of Phonetic Sciences, at Ghent in the Summer of 1938. There I got to know Trager, Hjelmslev, Uldall, Eli Fischer-Jørgensen, Martinet, and Jakobson, among

others. I became particularly friendly with Jon Uldall, who was a very intelligent and amusing person, and with Elizabeth Anderson, who later became Betsy Uldall, both of whom became colleagues and close friends. I also met Sir Richard Paget at that Congress. He was an interesting English scholar-eccentric and his book *Human Speech* is still well worth reading. It contains interesting data on phonetics, speculations on the gestural origin of speech, investigations of the acoustics of speech, and particularly his remarkable analysis of the acoustics of English (and other) vowels, into "back resonances" (=F1), and "front resonances" (=F2). All these resonances were identified by whispering, tapping the teeth, and other noninstrumental techniques, and their frequencies were determined by comparison with, as Paget tells us "a fixed note which I literally carry in my head. This head-note is a #g' of about 812 vibrations per second...which I hear on tapping my skull just above either ear" (Paget, 1930, p. 41). These experiments were carried out in 1921 and first published in Paget (1922) and are very largely confirmed by modern acoustic analysis. I later visited Paget in London, where he demonstrated some of his analysis techniques, and his speech-synthesis devices to me.

Among topics discussed at that Congress were several papers on "clicks". I remember sitting beside George Trager, who was an excellent phonetician, and exchanging with him glances of disbelief. At least two of the speakers were quite clearly confusing ejectives with clicks and that stimulated me to write the short article *On the Classification of Stop Consonants* that appeared in the *Maître Phonétique* in 1939.

Back at Edinburgh University, I took a short introductory course in Sanskrit. The Professor of Sanskrit and Comparative Philology was Berriedale Keith--an erudite former Indian Civil Service man who was author of a standard work on Sanskrit Literature. His method of conducting his classes was unusual. My fellow student was John Brough, who went on to become Professor of Sanskrit at the London University School of Oriental and African Studies. We were the only two students, and we sat on either side of a rectangular table in the middle of quite a small room in the older part of the University--the Old Quad. The room had double windows, tightly closed, central heating on full, and a blazing fire in the grate. Professor Berriedale Keith would bustle in, wearing a heavy coat, and a scarf, and would sit in a chair huddled over the fire, with his back to his students, occasionally looking over his shoulder as he lectured, or while we read and translated, from Lanman's *Sanskrit Reader*.

I learned only elementary Sanskrit, but I have never regretted attending that class. It is highly desirable, I believe, for any student of linguistics to have at least a nodding acquaintance with Latin, Greek, and Sanskrit, even if he or she is not destined

to become an Indo-European specialist, since a full appreciation of the nineteenth century development of comparative-historical linguistics requires some acquaintance with the languages that were the foundation of that development. And, of course, facility with Devanagari script is of great value when one visits India.

At the beginning of 1939 I was invited to go to Athens for one year to the British Council's new Institute of English Studies, where they were assembling a group of phoneticians to cope with the Greeks' problems with English pronunciation. It was not so usual in those days for students to interrupt their studies, but it seemed a good opportunity for me, particularly when I learned that my colleagues would include David Abercrombie and both the Uldalls. With the advent of World War II my colleagues and I were cut off in Greece where we remained until 1941 when the Germans were approaching Athens, and then were evacuated to Egypt. So it was to be, not one, but seven, years before I got back to Britain.

In Greece we taught Basic English to 5,000 to 6,000 students, both in classes at the Institute and latterly in very popular English-by-Radio programs from Athens Radio. Basic, now largely forgotten, was much criticized, but chiefly out of ignorance--those who knew the system (linguists and language teachers alike) were enthusiastic. It was a remarkable invention and a valuable instrument for introducing English as a second language, and for promoting clarity of thought and expression.

This restricted variety of English, with only 16 verbs and a total vocabulary of 850 items was no casually thought-up fad of some half-baked schoolteacher, but the solid semiotically based invention of C. K. Ogden, one of the last great English polymaths and eccentrics--psychologist, semanticist and all round scholar (Catford, 1950). He was the author, with I. A. Richards of *The Meaning of Meaning*--one of the most influential works on Semantics of the century. He had also authored numerous other books--*An ABC of Psychology*, a linguistic-semantic study of *Opposition*, *Bentham's Theory of Fictions*, etc. He was the translator of Wittgenstein's *Tractatus*, *Vaihinger's Philosophy of As If*, General Editor of Kegan Paul's International Library of Psychology and Scientific Method, Editor of *Psyche*, an important 1930s journal of what we might now call Psycholinguistics. I met Ogden briefly in 1939, then after the War I worked for a time with him as a research assistant.

So, in Greece we taught Basic. In Athens a dozen locally appointed teachers were strongly opposed to it at the start, but after a few weeks' experience were enthusiastic and prided themselves on being able speak fluent Basic at the "Basic tea" that we had every afternoon in the Institute. Although Winston Churchill recommended the widespread use of Basic in 1943, and the British Government put out a White Paper on the subject

in 1944, this support had little effect, partly, I suspect, because of the large vested interests of the great publishing houses with their extremely profitable TEFL textbooks. Basic certainly influenced my own thinking about semantics, English Grammar and language teaching.

The two years I spent in Athens were valuable in several ways. I acquired a working knowledge of Modern Greek, much experience in language teaching, and the advantage of frequent interaction with a number of fine phoneticians and linguists, including, most importantly, David Abercrombie and the Uldalls, with all three of whom I formed close and life-long friendships. From many discussions with Jon Uldall, whose collaboration with Hjelmslev had been broken off by the War, to be resumed later, I absorbed a certain amount of Glossematics, including the Glossematic distinctions between Content and Expression, and Form and Substance; semiological hierarchies, commutation, and other concepts further shaped my views of language and played their part in future thoughts about phonology, semantics, translation theory, language teaching, and so on.

Another very important event happened to me in Athens--I met my first Caucasian. A Russian friend had taken me to a party at the Russian emigré club in Athens, where the entertainment included a dazzling dance by a Circassian, impressive in his North Caucasian dress--the *cherkesska* (the long tunic with bandoliers, flared skirt and broad belt carrying the long Caucasian dagger), high soft leather boots and the woollen *kalpak* on his head. After the performance I asked the dancer what language he spoke. "Kabard," he answered, and I then asked him to count up to ten. He did so, in a rapid crescendo of exotic monosyllables: "zə, t'əw, šə, pɬə, tɬə, xə, bɬə, jə, bɛə, pšə". That was enough! Here were ejective fricatives, a voiced lateral fricative, labialized fricatives! I was hooked, and was able later to spend some time with him working out the Kabardian system of 48 consonants and --what intrigued me most--its system of three vowels, not in a triangular layout, but disposed vertically: ə-e-a.

I didn't really have enough time with my informant, who was known in Russian as Anatol Kunizev, but whose real name was [aɣ^ht^hoɫ q'unəzjuq^wʌ]; nevertheless I did produce a rather premature brief analysis of the language for the *Maître Phonétique*. And from notes I made at the time I see that I observed, and was intrigued by, the ergative construction--though I didn't then know the term "ergative".

With the German invasion of Greece, we had to leave Athens and go to Egypt, whence I was transferred to Palestine. There, in the intervals of teaching English, lecturing and so on, I got married. My wife, Lotte, and I spent our honeymoon in Lebanon

and Syria, where we pursued Circassians. In Damascus we were entertained by the Circassian scholar, Harun Batokw, inventor of an ingenious Roman orthography for his language--Circassian was an unwritten language when the great dispersal from the Caucasian homeland took place in the 1860s.

After the Revolution, the Soviet Government provided orthographies for 11 of the 34 North Caucasian languages. Circassian (Adyghe) was written in augmented Arabic characters from 1918 to 1927, then in augmented Roman till 1938 when the Cyrillic orthography was introduced. But the Circassians of the (Circassian) Diaspora were generally unaware of these developments in the Soviet Union. Many years later, in 1973 in fact, I was invited by the Israeli Ministry of Education to give a seminar to a group of Circassian teachers on the Cyrillic orthography and the problems of constructing a reading primer, as a result of which Circassian children in Israel now learn to read and write in their own language.

Back in Palestine I was gaining more experience in teaching English--to speakers of Arabic, Hebrew, Armenian, and others of the 60 languages that were then spoken there. There was more radio work as well, including an English by Radio program that Lotte (herself no mean practical linguist) and I did together. One of my assignments was to give an advanced course on English Grammar at the Weizmann Research Institute. I knew that my students there would be highly sophisticated and intelligent scientists, and I simply couldn't put before them the often puerile definitions in the traditional grammars. So this motivated me to make a serious study of English grammar, and particularly to rethink the precise meanings of grammatical items and grammatical categories.

Books that influenced me at that time were, naturally, Jespersen's *Modern English Grammar* (and the shorter *Essentials*), *The Philosophy of Grammar*, and specially his *Analytic Syntax*, which led me to use some of his syntactic notation in analysing some short samples of Circassian that I had collected. *Analytic Syntax* has recently (1984) been reprinted by the University of Chicago Press, and I heartily endorse the conclusion of Jim McCawley's Introduction to the book: "I hope that the appearance of this reprint...will speed the arrival of the day when ignorance of *Analytic Syntax* on the part of a linguist will be as unthinkable as ignorance of the B minor mass on the part of a musical scholar".

Apart from Jespersen's works I found two volumes in the recently published *International Encyclopedia of Unified Science* of considerable value. These were Bloomfield's *Linguistic Aspects of Science*, which was a good short summary of major aspects of Bloomfieldian linguistics (which at that time I found very congenial), and Morris' *Foundations of the Theory of*

Signs, a precursor to his later *Signs, Language and Behaviour*. Morris' earlier work very neatly dissected the sign process for me, and supplemented the more discursive works of Gardiner (*Speech and Language*), Ogden and Richards, and others, which had already stimulated a growing interest in meaning.

Of course, I thought a good deal about language teaching in general at this time, and particularly the teaching of pronunciation. Here the Praguian concept of Functional Load (which I had learned about from Martinet) seemed to me to provide an obvious criterion for deciding which phonological items, and more importantly, which phonological oppositions, were most "important", and would therefore have to be taught, even if difficult, while less "important" ones could be neglected or delayed. I was, of course, thinking in terms of a kind of "phonological selection" analogous to the vocabulary selection that was regularly practised in designing language teaching materials.

I therefore reviewed virtually all the monosyllables in my own speech and listed the number of times every confusable minimal pair of phonemes was represented in the list. There was still the problem of deciding on a criterion of "importance" for language teaching purposes. How small should the functional load of an opposition be for it to count as "unimportant", that is, to be neglected if it presented a particularly difficult and time-consuming problem for a particular group of learners? It seemed to me that the tolerances of native varieties of English might be a guide. So, listing all the oppositions of initial consonants, final consonants, and vowels in order of numerosity from the most numerous (i.e., carrying the highest functional load) downwards, I found that, in each list, when one reached about 30% of the highest functional load for that list, one entered a region where some oppositions had been abolished, that is, merger had occurred, in this or that English dialect. In other words, it seemed that English dialects could tolerate the loss of an opposition or two, provided the opposition had a functional load of about 30% of the maximum, or less. I have used this information frequently in talking and writing about TEFL, and, recently, in a somewhat different context (Catford, 1988).

In 1946 I got back to the UK. Here, I earned my living chiefly as a BBC radio actor, as well as by some teaching--private lessons in English for foreigners and also some teaching of Phonetics at the Royal Academy of Dramatic Art. In my BBC work I had come to see how valuable phonetics was to actors, and how many of them were sadly lacking phonetic training.

At this time I acquired great experience in Applied Phonetics, for that was precisely what I was doing. I was required to speak in scores of different English and foreign accents--for one thing, it was just after the War, and there were

many dramas or documentary programs on the BBC concerning the War, and I was frequently cast as a Nazi or as a Japanese officer in such programs: I had long been acquainted with the phonetics and phonology of Japanese (it was among the languages I had made notes on in the mid-1930s) so was able to apply Japanese phonology to English quite effectively. For a Thai part I remember studying Eugenie Henderson's *Prosodies in Siamese*, and for American Indians I naturally turned to Boas' *Handbook of American Indian Languages*, Volume 1 of which I had acquired, and (doing applied comparative phonetics) worked out how someone with a Fox or Dakota sound-system would probably speak English (I had no opportunity of hearing real Indian speech till, at Ken Pike's invitation, I visited the SIL Summer Institute at the University of Oklahoma in 1958).

Among the most exciting of these forays into Applied Phonetics were two long readings I did, on the BBC's "highbrow" Third Programme, of selections from Langland's *Piers Plowman* in 14th-century pronunciation, and a sustained dramatic rôle in Elizabethan pronunciation, as Shakespeare, in a (Third Programme, of course) play by Terence Tiller, in which the Bard mysteriously materializes to participate (in Tiller's beautifully written Elizabethan English) in an erudite discussion of the rôle of the fool in *King Lear*. On another occasion I had to invent some (grammatically consistent) sentences of an imaginary language for a program in which explorers found a "lost tribe" somewhere on the edge of the Sahara. I was the only speaker of the language, and I based it on Berber. This was Applied Linguistics.

Meanwhile, I had gone back to school, to London University, reading Russian and Slavonic Linguistics at the School of Slavonic and East European Studies, and General Linguistics with Firth at the School of Oriental and African Studies. From Firth I received a new orientation in both Linguistics and Phonology, which supplemented the Jonesian and Praguian phonology and eclectic Linguistics I had already acquired. Firthian linguistics was a variety of European structuralism, with a good many novel additions.

Firth made a useful distinction between Structure and System. He was keenly aware (as I already was by then) of the great importance of system, and the influence of system on the value of items. American linguistics seemed to me to be lacking in this respect. The emphasis there was on distribution, on syntagmatic relations, with, it seemed, very little concern for paradigmatic relations, and for the values set up by oppositions within a system. It is interesting to note that the key word of European structuralism, "system", does not appear at all in the index of Bloomfield's *Language*.

Firth emphasized the point, already familiar to me from Saussure and Glossematics, that every term in a system acquires a value from its opposition to other terms in the same system: that partially similar terms in different systems cannot have an identical "value" since they enter into different oppositive relations. Thus, roughly indicating the domain of the deictic systems of three dialects of English as squares, as in the following diagram, we can see how oppositive relations within the system will assign different values to the items.

this	these
that	those

English

this	thir
that	thae
yon	

S.Scots

this
that
yon

N.E.Scots

It is obvious that, with the probable exception of *yon* in the two Scots dialects, no item in any one of these deictic systems can have the same value as an item in any other of the systems. The different numbers and arrangements of the items set up different oppositive relations. Consequently *that* has the meaning "more remote of two, singular" in English, "intermediately remote of three, singular" in S. Scots, "intermediately remote of three, indifferently singular or plural" in N. E. Scots. Such differences, of course, may lead to ambiguities in interdialectal communication--a real-life example of this is cited in Catford (1984, p. 23).

The same kind of nonequivalence between items in different systems applies to phonology as well, and underlies Firth's polysystemic approach to phonology. In many languages different systems of vowels, for example, occur in stressed and unstressed syllables, different systems of consonants occur initially and finally in syllables and so on. A good example is presented by Javanese occlusives. In Javanese, a system of 10 oral occlusives (stops and affricates) occurs initially in syllables. These are: p, b, t, d, t̚, d̚, tʃ, dʃ, k, g; here b, d, etc. are conventionally used to represent sounds that (except after nasals) are, in fact, voiceless, differing from p, t, etc. by larynx lowering and pharynx expansion. In syllable final position only three occlusives occur: the preglottalized, unreleased stops ʔp ʔt ʔk.

Laying these out side by side we see clearly that the two systems are so different that one can hardly equate any item in either system with one in the other system:

Initial:	p	b	t	d	t̥	d̥	tj	dj	k	g
Final:	ʔp̣		ʔṭ				ʔḳ			

not only are there major substantial differences (e.g., between p or b and ʔp̣), but the values derived from the oppositive relations in a three-term system cannot be the same as those derived from the oppositive relations in a ten-term system. Traditional phoneme theory, however, only recognized a single, global, system of phonemes for a language, and therefore obliged one to equate each of the final consonants with one particular initial consonant (as an allophone), or else to deal with the problem in terms of neutralization of phonemic oppositions, and the occurrence of archiphonemes, etc.

Firth evaded the problem of equating terms in different systems by adopting a polysystemic approach. He saw no need to insist on describing the phonology of a language in terms of a single global set of phonemes. Once one has identified relevant places in structure--stressed/unstressed, initial/final, etc.--one can enumerate the alternants that can occur at each of these places, that is, describe the different systems of phonematic units separately. It is quite unnecessary to try and unite these systems into a single overall set of phonemes, except for one purpose: the devising of a practical writing system for a language. Because of this, Firth used to cite with approval the subtitle of Pike's book: *Phonemics: A Technique for Reducing Languages to Writing*.

The other important feature of Firthian phonology was, of course, prosodic analysis. In rejecting the segmental phoneme as the basic phonological unit, Firth took account of phonologically pertinent units extending beyond the segment to the syllable (or part of it), to the word, and beyond. As this reference to the grammatical unit *word* indicates, Firth did not limit the domains of prosodies to phonological environments. And this, incidentally, was true of the polysystemic approach: the environments where systems of phonematic units are set up for a language are not necessarily places in phonological structure; they may be etymologically or grammatically defined (e.g., in words borrowed from a particular language, or initial consonants in pronouns, etc.).

Firth was influenced by Malinowski--and recommended his students read the remarks on language in Malinowski's *Coral Gardens and their Magic* (Vol. 2) and his appendix to *The*

Meaning of Meaning--Meaning in Primitive Languages. From Malinowski, too, Firth adopted the term *Context of Situation* (CofS), but characteristically gave it a more abstract meaning. For Malinowski, CofS was, or at least included, the actual physical environment of an utterance. For Firth CofS was a field of relations--relations between persons playing a social role, the words they utter, and other objects, events, etc., to which they are related. For example, "I'll have a pint please," (uttered in England in the 1950s or so) is relatable to a CofS in which there are two participants, one of whom requires a specific volume of a liquid or (less probably) small particulate matter (e.g., grain, nails). The actual physical setting or environment might be a pub, a dairy, a gas station (re oil), a corn chandler's, an ironmonger's, etc., but no one of these is the CofS, which is an abstraction from all these (and perhaps other) possibilities.

Firth was very sensible of the need for a theory of meaning. At a time when American (Neo-Bloomfieldian) linguists were excluding Meaning from linguistics, he defined Linguistics as "The study of Meaning at all levels of language". His approach to meaning was idiosyncratic. Meaning, for him, was the total network of relations into which a linguistic item (morpheme, word, etc.) enters. This total network was subdivided into Formal Meaning, and Contextual Meaning. *Formal meaning* is the "value" that an item derives from internal relationships set up inside the language itself; for example from its membership in a *part-of-speech class*; its *place in a system* (as in examples above), or its regular occurrence in *collocations*. The meaning of the words *cows* and *tigresses*, for instance, are differentiated, in part, by the fact that *cows* collocates with *milk* but *tigresses* does not. We can say, "they are milking the cows", but rarely or never, "they are milking the tigresses". Thus even without knowing anything else about the words *cows* and *tigresses* one knows at least that they *differ* in meaning because of the collocational difference. *Contextual meaning* is, of course, relationship, or, better, relatability, to contexts of situation: to generalized constellations of features abstracted from extralinguistic situations, and ultimately from the whole culture within which an utterance occurs.

So now I had been exposed to the Jonesian phoneme, Prague phonology, and Firthian prosodic phonology--more generally, I was deeply influenced by Saussurean and European structural linguistics--which appealed to me more than Bloomfieldian linguistics, which I found to be too purely distributional--too much based upon syntagmatic structure and "privilege of occurrence" to the neglect of *systems*, which I saw as one of the most important features of language. It was also sadly lacking in a linguistically useful theory of meaning. These were defects

which were inherited by Chomsky directly from Neo-Bloomfieldian linguistics.

Firth insisted that language had to be studied as part of the social process, as "a form of human living, rather than merely a set of arbitrary signs and symbols" as he wrote shortly before his death in 1960. He wrote of the "restricted languages" appropriate to various social rôles--which influenced my own thinking about language varieties, both in language teaching and in translation.

In 1950 Roman Jakobson gave two lectures in London, which I attended, and which impressed me. One, on the Russian verb, was a beautiful analysis in terms of systems, emphasizing the unitary meaning of each verbal category. I immediately appreciated the importance of this view--that each verbal category has a unique meaning--and this influenced my own thinking on the English verb (see, e.g., Catford, 1982). The other lecture was a stimulating preview of the Jakobsonian distinctive features, which had not yet burst upon the linguistic scene.

In 1952 I joined Edinburgh University as a Research Lecturer on the Linguistic Survey of Scotland (LSS). This was a completely congenial job for me, given my early interest in dialects and in the idea of a Linguistic Atlas of Scotland. The Survey had already begun to carry out a postal survey, and hundreds of replies to its postal questionnaires were now coming in, with fascinating data, including answers to some questions of a phonetic/phonological nature, that I had suggested.

One of my tasks for the LSS was the preparation of a questionnaire for fieldwork. Most previous extensive dialect surveys had a basically historical orientation--sampling the modern reflexes of various older sounds. This reveals interesting diachronic data, but seldom enables one to get a complete picture of the sound systems of any one contemporary dialect. I had decided very early that our LSS questionnaire should be structurally oriented; that the aim should be to discover as much as possible about the sound *systems* of the dialects. Naturally, the approach was polysystemic. I was not concerned, for example, with setting up a single vowel system for each dialect, but rather with establishing the systems that occurred in various environments. From past experience, from published information on Scots dialects, and from reconnaissance in the field I knew that (in the monosyllabic words that were chiefly investigated) the crucial factor determining Scots vowel systems was the syllable-closing consonant, and the word-items in the questionnaire were therefore organized in lists, each with a particular final consonant, or consonant type. As many potential minimal pairs,

or minimal groups, as possible were included, so that it would be relatively easy to work out the system of phonematic units in each group.

About that time Weinreich published a well-known article in *Word* entitled "Is a structural dialectology possible?" (Weinreich, 1954). I didn't see the article till our work was well under way. I knew very well that, on a strict interpretation, one cannot equate items in different systems, but it never occurred to me that a structural dialectology might *not* be possible. In the first place, one can certainly compare systems as wholes (e.g., in terms of the number of phonematic units in the system): the geographical distribution of systems of 8, 9, 10, 11 vowels already yields interesting dialectological information. But one can go much further than that. It is possible to compare the internal arrangements of systems: if, for instance, one deletes the words *this*, *that*, etc. from the deictic system diagrams given above, one can still see that these systems have different internal arrangements. This was more or less the approach that we adopted in the LSS in comparing vowel systems of different dialects, as explained in Catford (1957).

In any case, I saw the linguistic survey as a project in applied linguistics: we had a practical job to do, namely, to collect comparable data on a large number of dialects and present them cartographically in such a way as to make the geographical distribution of significant differences and similarities as apparent as possible. If strictly interpreted structural linguistic theory said you could not do this, then...*tant pis pour la théorie!* Theory, I have always believed, must guide research, and should be used in applications: but it should not be allowed to dominate, or to be made an excuse for failing to get the job done.

In 1957 I was appointed Director of the newly opened School of Applied Linguistics (SAL) at Edinburgh University. The SAL was set up at the instigation of the British Council as a centre for the advanced education of experienced teachers of English overseas who were destined to become leaders in the field in their countries. In deference to the specific aims of the School there was a subtitle on its headed notepaper: "Research and Training in the Teaching of English as a Second Language". But I had myself chosen the main title of the School, because I believed it was important to emphasize that it was not a training college, where a specific method of teaching English would be taught, but a place where all the problems of language teaching would be explored in the light of general linguistic data and theories.

So far as I know, the SAL was the first academic institution in the world to have Applied Linguistics in its title--the Center for Applied Linguistics in Washington opened two years later. In Russian, use of an equivalent of the term "Applied Linguistics"

goes back at least to Baudouin de Courtenay's inaugural address at St. Petersburg University in 1870, but the Committee on Applied Linguistics of the Speech Research Section of the Acoustics Commission of the Soviet Academy of Sciences was established only in January 1958. It is true that the Soviet Caucasologist N. F. Jakovlev refers to research in the Institute of Peoples of the East between 1924 and 1928, concerning the problem of establishing alphabets for unwritten languages of the USSR, which, as he says "had a remarkably favourable effect upon the development of a new direction in linguistic science which one can designate by the term *applied linguistics* or *theory of applied linguistics*." But it is not clear that the term was incorporated in the title of any institution at that time (Jakovlev, 1928).

During the first year of the School, thanks to a Ford Foundation grant, we had a succession of visits from leading American linguists of the time, including Bernard Bloch, Martin Joos, and George Trager. In spite of this injection of American linguistics, the dominant theory that was applied in the SAL was Firthian--for one thing, we were dealing with language-teaching, (which implies teaching meaning at all levels) and a theory of meaning was essential. The next year, we had Firth himself for a term, and then Michael Halliday joined the Edinburgh faculty and gave courses in Linguistics for our students. My own contributions were courses on General Theory of Language Teaching, and English Grammar; Peter Strevens taught phonetics and introductory Linguistics, while Ronald Mackin taught a detailed course on Methodics--a term I had calqued on the Russian *metodika*, to differentiate it from the usual limited and practical courses on "Methods" or "Methodology". Our Methodics was a general survey of methods of selecting, grading, and presenting materials for language teaching--a kind of general theory of methods. Finally, our psycholinguist, the late Elisabeth Ingram, taught Psychology of Language, Language Acquisition, and Language Test Construction.

For me, Applied Linguistics covers a wide range of topics, including Dialect Surveys, Telecommunications Applications, Human and Machine Translation, Language Development and Improvement (developing new national languages, as in Israel, India, Indonesia; providing alphabets for unwritten languages), Medical applications, etc. as well as all types of Language Teaching. Our work in the SAL was perforce somewhat restricted to this last topic, although we did carry out some research on Bilingualism and Translation Theory (Catford, 1965).

It was from Bilingualism theory that the terms *primary language* (a person's dominant language) and *secondary language* were derived. These terms were abbreviated to L1 and L2, and

in Catford (1959) the basic distinction was made between teaching a person's L1 (L1T) for example, teaching English to native English speakers, and teaching a language destined to be a secondary language (L2T), for example, teaching French to English speakers. The Edinburgh team began about 1959 using the terms L1 and L2 at conferences and in publications, and the terms became widely used among applied linguists. They were very often misinterpreted as meaning "first language" and "second language" in a chronological sense, thus missing the point that they referred to language dominance. As we knew from our bilingualism studies, language dominance can change in a life time, and a person's chronologically first language may be superseded by a secondary language which is learned later. This commonly happens to persons who start life with a local minority language, then learn a language of wider use and greater prestige as an L2, and receive all their education in that language, so that by adulthood the new language has become dominant (L1), and the first language has receded to the background, as L2. In our bilingualism study we had, for example, Scots who spoke Gaelic in early childhood, but as adults conducted virtually all of their inner and outer lives in English. And similar changes of language dominance were seen in Indians, whose first language was a minority Indian language, but who had now clearly acquired Hindi, or Indian English, as their L1.

It was in Edinburgh in the 1950s that Halliday, starting from Firthian linguistics, developed what was at first called "Scale and Category grammar" and which later became the "Systemic Linguistics" that we know today. This was a stimulating time for the Edinburgh linguists. Halliday, of course, was the prime mover in the systemic development, but we all contributed a little in regular meetings for the discussion of linguistic problems. We began immediately to apply a Hallidayan approach to our applied linguistics wherever it was appropriate, but never forgetting, of course, that theory must always be subservient to application, and that no one theory is "the best" for all applications: in Applied Linguistics a discriminating eclecticism is desirable.

In 1957 Chomsky's *Syntactic Structures* appeared. It did not impress me. Nor did the many publications by Chomsky's followers that came immediately after it. The fact is that we felt no need for Chomskyan linguistics, since, for most of our purposes we had a better theory in Systemic Linguistics. By comparison, Chomskyan linguistics seemed superficial and inadequate. It lacked any kind of human, social, component--it appeared to treat language as a code, not as human behaviour in a social context. It failed to make a clean separation between grammar and phonology. It provided no consistent grammatical

or phonological hierarchies. The explicit hierarchical ranking of grammatical units as sentence, clause, group, word, morpheme; or of phonological units as (in English) tone-group, foot, syllable, phonematic unit, not only makes for clear descriptive statements, but provides an excellent basis for translation theory and for organizing material for teaching purposes.

Chomsky's linguistics also appeared to be lacking an appreciation of the all-important linguistic concept of *system*—*Syntactic Structures* itself has no index, but Chomsky's later *Aspects of the Theory of Syntax* has, and that, like Bloomfield's *Language*, does not include the term "system". Incidentally, a comparison of the indexes of these two books shows that in *Language* 56% of the entries are what would generally be regarded as technical terms of linguistics, and 34% are names of languages or language families: in *Aspects* only 24% of entries are linguistic terms, and there is not one language name. This gave *Aspects* (as well as *Syntactic Structures*) the appearance of not embodying real linguistics! The Chomskyan works also contained no useful theory of meaning, which was treated as a kind of afterthought—as "semantic interpretations" attached to syntactic structures. In addition to these defects (as they seemed to me) much of the early work in generative transformational grammar was aggressively dogmatic and strewn with hasty generalizations, and this, too, I naturally found repellent.

In order not to prolong this account unduly, let me pass quickly over the rest of the story. In 1964 I came to The University of Michigan to join the Department of Linguistics and to be Director of the English Language Institute. After some years at the Institute, and then as Chairman of the Department I settled down as a simple professor of linguistics. When my first sabbatical was approaching in 1970 I decided at last to develop the interest in Caucasian languages that had been aroused by meeting that Kabardian in Athens about 30 years earlier, and a few other Caucasians in the Middle East.

In 1970, then, with the support of the American Council of Learned Societies, I made a field trip to the Soviet Union. At the Linguistic Institutes in Moscow, Sukhumi, and Tbilisi I was received in a very friendly way by Soviet colleagues, and made the acquaintance of a large percentage of all Soviet Caucasologists. They hospitably provided me with facilities, and with informants speaking 20 different Caucasian languages. This gave me a good start in collecting phonetic data on these languages, which, as is well known, are unusually interesting from that point of view. I also became interested in some of the characteristic grammatical features of Caucasian, notably ergativity. Many of these things have been made the topics of past and forthcoming publications, for example, Catford (1972,

1976, 1977, 1989?). A second visit to the USSR in 1977 procured more data on several of the languages I had worked with before, and on six or seven additional languages.

To conclude, let me say a little about changes I have observed in linguistics over the past 50 years. To start with Phonetics--it is obvious that there have been technological developments that have provided greatly improved possibilities of detailed investigation. The introduction of the Sound Spectrograph just after World War II made the acoustic phase of speech so accessible that, for a time, the other phases of speech tended to be neglected. This period has passed, however, and although now we have even more effective computerized means of acoustic analysis and synthesis, the study of the articulatory and aerodynamic phases of speech has come back into fashion, again with enormously improved investigative technology. This is good, because, in the words of Abercrombie (1967), speech is "audible gesture", and the sound wave is, in a sense, the least relevant phase of speech--least relevant to language as a human, social interactive process, since it is merely the fortuitous physical event that links speaker to hearer.

In phonetics and phonology distinctive features have, of course, been around at least since Trubetskoj and the Prague School in the 1930s. Indeed "features" whether used distinctively or not, are implicit in all phonetic taxonomy and in analytic phonetic notations, such as Bell's *Visible Speech* (1867), and the "alphabetic" systems of Jespersen (1889) and Pike (1944). However, it is only in the past 30 years that distinctive features have become a central concern of a number of scholars. The pursuit of a universal set of discrete distinctive features has stimulated research, but it has also introduced the danger of procrusteanism. The universal human sound-producing potential is exploited in a great variety of ways, and it is probably better to describe it in terms of parameters--ranges of articulatory and phonatory possibilities. Thus, multivalued features, such as those of Ladefoged (1975) seem more appropriate than a finite set of inflexibly defined supposedly universal binary features.

There is a tradition, still strong in many quarters, of treating speech as basically a linear sequence of segmental phonemes, with pitches and stresses scattered on top of them as a kind of suprasegmental condiment. This was perhaps my own view until I became aware of Firthian prosodies forty years ago, and then, with Halliday, came to view the entire hierarchy of phonological units as an integrated whole. Remarkably, it is only now, nearly 30 years later, that a few generative phonologists have rediscovered this particular wheel! "Probably the most radical claim which has been made by metrical phonologists," write Hogg and McCully (1987, pp. 2-3) "is that any such purely

segmental approach is inadequate, and that reference has to be made to some kind of phonological hierarchy...."

To conclude--a major change which has occurred in linguistics in the past fifty years is an increase in specialization and in fragmentation of the subject. Half a century ago, in Europe, at least, a linguist was someone who was thoroughly competent in phonetics, but also concerned with phonology; prepared to deal with morphology and syntax, and probably with comparative-historical linguistics as well. He or she would also be interested in meaning, and in the social functions of language. All of these concerns would come under the heading of "General Linguistics". Both Sweet and Jespersen covered much of that range in their writings, and, incidentally, both of them also dealt with language teaching. When I started teaching English overseas, their books, together with H. E. Palmer's, were among the best guides the beginning language teacher had.

Nowadays we find syntacticians who are ignorant of phonetics (and for a time, ignorant of any language but English--though fortunately that era seems to have passed), and with little interest in many of the other aspects of language. The social aspects of language are relegated to the Sociolinguists, the study of meaning is split into Semantics and Pragmatics, and we have specialists in both fields (not a very happy dissociation, since meanings of linguistic items typically include both semantic and pragmatic elements). To a large extent language acquisition is the province of the Psycholinguists, and language teaching theory is relegated to the Applied Linguists. And all this, unfortunately, is often accompanied by a lack of historical perspective, and a consequent tendency to reinvent the wheel.

Fragmentation and specialization no doubt facilitate a deeper penetration into some of the problems of language, but, at the same time, they inculcate a certain narrowness of outlook, and a lack of confidence in relation to certain topics. This is strikingly exemplified, for instance, by the tendency, particularly common in the US, where it no doubt derives from Bloomfield, for linguists to believe that they are incompetent to deal with questions of meaning, and that they must hand semantics over to the philosophers and logicians. Since the whole *raison d'être* of language is the conveying of meaning, it is astonishing to find specialists in the study of language, often with extensive field experience and some acquaintance with exotic languages, who believe that they are less competent to deal with this absolutely central issue than are specialists in a different field and with a quite different background and training, as I have pointed out elsewhere (Catford, 1984).

The specialization that I have referred to is in part due to the enormous expansion of knowledge about language and languages that has occurred during the past 50 years, and is thus, perhaps,

inevitable. Nevertheless, there is still a need for General Linguists who can survey the whole range of linguistic disciplines and thus act as a kind of unifying bridge, and I hope that our Universities will continue to produce such people.

REFERENCES

- Abercrombie, D. (1967). *Elements of general phonetics*, Edinburgh: University Press.
- Armstrong, Liliás E. (1932). *The phonetics of French*. London: Bell.
- Baudouin de Courtenay, I. A. (1963). Nekotorye obščie zamečanija o jazykovedenii i jazyke (St. Petersburg inaugural lecture, 1870) in *Izbrannye trudy....* Moskva, Izdat. AN SSSR
- Bell, Alex. Melville. (1867). *Visible speech: The science of universal alphabets*. London: Simpkin Marshall & Co
- Bloomfield, L. (1933). *Language*. New York: Holt.
- Bloomfield, L. (1939). Linguistic aspects of science. *International Encyclopedia of Unified Science*, 1, 4, Chicago: University of Chicago Press.
- Boas, Franz. (1911). *Handbook of American Indian languages*, Pt.1, Washington, D.C.: Government Printing Office.
- Catford, J. C. (1935). Dialect of Morebattle, *Le Maître Phonétique*, 3^e série, janvier-mars: 13-14
- Catford, J. C. (1939). On the classification of stop consonants. *Le Maître Phonétique*, 3^e série, janvier-mars: 2-5, and (1973) in W. E. Jones and J. Laver, (Eds), *Phonetics in Linguistics*. (pp. 43-46). London: Longman.
- Catford, J. C. (1942). The Kabardian language. *Le Maître Phonétique*, juillet-décembre: 14-18
- Catford, J. C. (1950). The background and origins of Basic English, *English Language Teaching*, and (1968) *ELT selections*, 1, (pp. 201-212). Oxford: Oxford University Press.
- Catford, J. C. (1957). Vowel systems of Scottish dialects. In *Transactions of the philological society* (pp. 107-117).
- Catford, J. C. (1959). The teaching of English as a foreign language. In R. Quirk and A. H. Smith (Eds.), *The teaching of English* (pp. 164-189). London: Secker and Warburg and (1964) Oxford: Oxford University Press.

- Catford, J. C. (1965). *A Linguistic Theory of Translation*, Oxford University Press
- Catford, J. C. (1972). Labialization in Caucasian languages with special reference to Abkhaz. In *Proceedings of the Seventh International Congress of Phonetic Sciences* (pp. 679-682). The Hague: Mouton.
- Catford, J. C. (1976). Ergativity in Caucasian languages. In *Actes du sixième congrès de l'association linguistique du nord-est* (pp. 1-15). Montreal: Université de Montréal.
- Catford, J. C. (1977). Mountain of tongues: The languages of the Caucasus, *Annual Review of Anthropology*, 283-314.
- Catford, J. C. (1982). Marking and frequency in the English verb. In John Anderson (Ed.), *Language form and linguistic variation: Papers dedicated to Angus McIntoch* (pp. 11-27). Amsterdam: John Benjamins.
- Catford, J. C. (1984). Insects are free: Reflections on meaning in linguistics. *Language Learning, Special Issue 5*, 13-32.
- Catford, J. C. (1988). Functional load and diachronic phonology. In *The Prague school and its legacy* (pp. 3-19). Amsterdam: John Benjamins
- Catford, J. C. (1989?) The classification of Caucasian languages, to appear in *Sprung from some Common Source* (papers from a Conference on the Genetic Classification of Languages, Rice University, Houston, Texas, 1986).
- Chomsky, Noam. (1957). *Syntactic structures*, Janua Linguarum, Series Minor, Nr. 4, The Hague: Mouton.
- Chomsky, Noam. (1965). *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press.
- Coustenoble, Hélène H. & Armstrong, Lillas (1934). *Studies in French Intonation*. Cambridge: Heffer.
- Gardiner, Alan H. (1932). *Speech and Language*. Oxford: Oxford University Press.
- Graff, Willem L. (1932). *Language and Languages*. New York: Appleton.
- Henderson, Eugenie. (1949). Prosodies in Siamese: A study in synthesis. In *Asia Major I* (pp. 189-215).
- Hogg, Richard & McCully, C. B. (1987). *Metrical phonology: a coursebook*. Cambridge: Cambridge University Press.

- Jakovlev, N.F. (1928). *Matematičeskaja formula postroenija alfavita*. In A. Reformatskij (Ed.), *Kul'tura i pis'mennost' vostoka* and (1970) *Iz istorii otečestvennoj fonologii* (pp. 123-148). Moskva: Nauka.
- Jespersen, Otto. (1889). *The articulations of speech sounds represented by means of alphabetic symbols*, Marburg.
- Jespersen, Otto. (1904). *How to teach a foreign language*. London: Allen and Unwin.
- Jespersen, Otto. (1961 reprint). *A Modern English Grammar*. London: Allen and Unwin.
- Jespersen, Otto. (1922). *Language: its nature development and origin*. London: Allen and Unwin.
- Jespersen, Otto. (1924). *The Philosophy of Grammar*. London: Allen and Unwin.
- Jespersen, Otto. (1933). *Essentials of English Grammar*. London: Allen and Unwin.
- Jespersen, Otto. (1937). *Analytic Syntax* London: Allen and Unwin.
- Jones, Daniel. (1918). *An Outline of English Phonetics*. Leipzig and Berlin: Teubner.
- Jones, Daniel. (1963). *English pronouncing dictionary*. (12th ed.) London: Dent
- Malinowski, Bronislaw (1923) *The problem of meaning in primitive languages*. (Suppl. 1 to Ogden & Richards, *Meaning of Meaning*).
- Malinowski, Bronislaw. (1935). *Coral gardens and their magic* (Vol. 2). Bloomington: Indiana University Press (1965).
- Morris, Chas. W. (1938) *Foundations of the theory of signs*. *International Encyclopedia of Unified Science*, 1(2).
- Morris, Chas. W. (1946). *Signs, language and behavior*. New York: Prentice Hall
- Müller, F. Max. (1862). *Lectures on the science of language* (Vol. 1), New York: Scribner.
- Noël-Armfield, G. (1931). *General phonetics*. Cambridge: Heffer.
- Ogden C. K. (1930). *The ABC of psychology*. London: Kegan Paul.
- Ogden, C. K. (1932). *Opposition: a linguistic and psychological analysis*. London: Kegan Paul, *Psyche Miniatures*
- Ogden, C. K. (1932). *Bentham's theory of fictions*. London: Kegan Paul.
- Ogden, C. K. (Ed.).(1920-1938). *Psyche: An annual of general and linguistic psychology*. Cambridge and London: Kegan Paul.

- Ogden, C. K. & Richards, I. A. (1923). *The meaning of meaning*. London: Kegan Paul.
- Paget, Sir Richard. (1922). *Vowel resonances*. International Phonetic Association.
- Paget, Sir Richard. (1930). *Human speech*. London: Kegan Paul.
- Palmer, H. E. (1917). *The scientific study and teaching of languages*. London: Harrap and (1968) Oxford University Press.
- Palmer, H. E. (1921). *The principles of language study*. London: Harrap and (1964) Oxford University Press.
- Palmer, H. E. (1924). *A grammar of spoken English*. Cambridge: Heffer.
- Palmer, H. E. (1930). *Principles of Romanization*. Tokyo: Maruzen.
- Pike, K. L. (1944). *Phonetics*. Ann Arbor: University of Michigan Press.
- Pike, K. L. (1947). *Phonemics: A technique for reducing languages to writing*, Ann Arbor, University of Michigan Press.
- Shaw, G. Bernard. (1926). *Pygmalion*. London: Constable
- Saussure, F de. (1931). *Cours de linguistique générale*. Paris: Payot.
- Sweet, Henry. (1890) *A primer of phonetics*. Oxford: Clarendon Press.
- Sweet, Henry. (1899). *The practical study of languages*. London: Dent and Oxford University Press (1964)
- Tareporewala, I. G. (1932). *Elements of the science of language*. Calcutta University Press.
- Vaihinger, H. (1925). *The philosophy of "as if"* (C. K. Ogden, Transl.). London: Kegan Paul.
- Ward, Ida. (1929). *The phonetics of English*. Cambridge: Heffer.
- Weinreich, U. (1954). Is a structural dialectology possible? *Word*, 10, 388-400.
- Wittgenstein, L. (1922) *Tractatus logico-philosophicus* (C. K. Ogden, Transl.). London: Kegan Paul.

INVITED LECTURE

FOUR POSTULATES

OF GOVERNMENT AND BINDING THEORY

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0. Introduction

Scientists like to think that behind any scientific enterprise there is a solid theoretical foundation. Linguists are no different from other scientists in this. We have and perhaps always have had an interest in linguistic theories of one kind or another. If we count the development of systems of logic as a part of linguistic theory, then our interest in general, non-language-specific disciplines (= theory) can be said to go back to the origins of linguistic studies.

In short, Noam Chomsky did not invent linguistic theory or even make it respectable. He just helped make *calling* it "theory" respectable and engendered masses of speculation and writing on theory. Most of this speculation and writing over the past thirty years has tried to demonstrate that a particular Chomskyan claim is the best way of approaching some linguistic phenomenon (cf. Baker & Brame 1972) or that there is at least one better way of doing things that is not Chomskyan (cf. Lockwood 1975 or Sullivan 1977). That is, "theoretical" writing has focused on the functional claims of theories rather than on their internal structure. Neither proponents nor opponents of the Chomskyan approach to linguistics (hereafter C-lin) have subjected the theory itself to direct logical scrutiny.

Such direct logical scrutiny is the interest of the present study. Down through the years, C-lin writers have considered the then-contemporary set of C-lin proposals a full-blown theory of everything that is important in language. In short, I propose to take government and binding theory (hereafter GB) seriously, to treat it as if it were a well-formed theory. I look at its axiom structure in outline and analyze four of its postulates logically in some detail. I discuss the logical consequences of these axioms and postulates and show their implications for GB and for linguistic theory in general. I conclude that, whatever the advantages or shortcomings of its functional claims, GB is not a particularly well-formed theory, and it will produce significant advances only accidentally, if at all.

But before I begin any examination, I want to discuss the characteristics of a theory and explain how a theory can be criticized.

I. Theory

I.1 The Architecture of a Theory

A complete theory of anything needs a number of logically interconnected and mutually compatible parts. To begin with, it must be based on a logical/philosophical foundation which defines the object of the theory, its descriptive goals, and the methodology of description. These are the functional claims mentioned above.

Next, a theory should have a set of axioms and postulates. Axioms and postulates are statements which are assumed to be true without further validation. They are essential to the further development of the theory's architecture and to any descriptive models. Both axioms and postulates are of the same logical sort. They may be non-empirical, as in the assumption of self-identity, or they can be empirical statements which have been validated, as in the heliocen-

tric solar system. But whether empirical or not, they are all unassailable facts, from the point of view of the theory.

Now there is a systematic difference between axioms and postulates. Axioms apply to a broad family of theories. For example, most branches of mathematics and logic assume the truth of self-identity, i.e. that ($a = a$) for any object a . Axioms are sometimes called the "postulates of ... embedded theories (which) have gained such strong support that they are accepted as general facts or laws" (Lewis 1987:5). Conversely, postulates themselves are specific to a particular theory or sub-family of theories. For example, the assumption that through a point outside of a line there is one and only one line parallel to the given line is a postulate of Euclidean geometry.³

Finally, the theory must have a logically consistent methodology of proof to allow the addition of theorems to the set of axioms and postulates. The theorems complete the architecture of the theory and allow for the development of descriptive models.

I.2 Chomsky on Theory

Those who have studied the philosophy or history of theory construction will have recognized the characteristics of theories outlined above. But in the time I have been writing on metatheory, I have been criticized for "making up" the materials given in section I.1. Someone (*not* Chomsky) even commented that, just because I thought a theory should have the shape given above, that didn't mean that Chomsky views or should view theory the same way. In rebuttal of such comments I offer two quotations from Chomsky.

- (1) "We want the primitives (of UG-*WJS*) to be concepts that can plausibly be assumed to provide a preliminary, prelinguistic analysis of a reasonable selection of presented data." (Chomsky 1980:10)
- (2) "Any theory ... may be regarded ideally as a set of concepts and a set of theorems stated in terms of these concepts." (Chomsky 1980:9)

No one can doubt that Chomsky has stated his philosophy and goals clearly and explicitly. In this context, I assume that the *concepts* mentioned in (1) and (2) are the axioms and postulates of Chomskyan theory. If so, Chomsky's view of the architecture of a theory is at least compatible with mine, and no further discussion on the fairness or cogency of my preliminary outline is necessary.

I turn now to a consideration of the ways in which a theory can be criticized.

I.3 Criticizing a Theory

A theory may be criticized on any of the points of its architecture. For example, C-lin has been criticized often and effectively on functional grounds, i.e. that its goals are not appropriate to the description of language and the use of language in communication. The descriptive model which happens to be current at a given moment has also been criticized for its failure or inability to fulfill even the stated goals of C-lin. The former criticism is simply ignored and the latter is "answered" by the statement that the model/theory has been altered to meet some objections or that someone is now "considering" parallel modifications, so those objections aren't really valid any more. In the face of such responses, functional criticisms, however cogent, are fruitless, and I carry them no further. Still, I return to the question of the descriptive model below (cf. section IV.3).

Conversely the axioms, postulates, proofs, and theorems can be scrutinized and criticized for internal inconsistency or any lesser logical fallacy. A valid criticism in this area may be disastrous for a theory, and it certainly invalidates any models or descriptions based on the logical fallacy.

Criticisms in the logical area cannot be rebutted and they should be devastating. But for

the most part they seem to be misunderstood; or perhaps their consequences are not fully appreciated. For whatever reason, they are totally ignored. It remains to be seen whether I can make my criticisms understood. I certainly do not expect them to have any influence.

I.4 The Present Study

I begin with a short outline of the axiomatic structure of GB, just to show that it can be done, followed by a short discussion of some (to me) anomalous characteristics of the initial axiom set. I follow this with an in-depth analysis of four of the postulates of GB and a criticism of each postulate individually. I conclude with a discussion of the significance of the postulates as a set and the consequences of the postulates for GB.

II. The Axiom Structure of GB

II.1 Summary of Axiom Types

The axioms of C-lin have never been stated neatly and in full,⁴ so far as I know. Still, it is possible to state with a reasonable degree of assurance that some axioms have been assumed throughout the three decades of C-lin writing. Foremost among these is the assumption that syntactic structures are all trees, that semantic and phonetic features come from categorization hierarchies, and that transformations hold between levels of abstraction. Trees and other hierarchical structures can be defined mathematically or derived from more primitive logical relations. Either way, the axioms involved are easily statable.

Transformations present somewhat more of a problem. Chomsky (1957:80) says, "every transformation I have investigated is *irreversible* (my emphasis-WJS)". For Chomsky, then, C-lin transformations are one-way commands that change one (relatively) unmarked structure into another, more highly marked structure, erasing the original structure in the process. Zellig Harris's view of transformations is that they are two-way commands that relate two minimally different structures. C-lin writers have generally treated transformational rules in the Chomskyan sense, though some, e.g. G. Lakoff (1972) and Bouchard (personal communication) have favored the view of a transformation as a relationship between two structures. Of course, the choice made here affects the specific axioms adopted, but the axiom in either case is again easily statable. There are, however, problems here which need to be discussed.

II.2 Some Difficulties

Apart from the choices indicated above, there are two kinds of problems involved in completing the inventory of the basic axiom set of C-lin. Both problems relate to the nature of the interaction between transformational rules and tree structures. For example, when a constituent in a tree is moved, is the structure it leaves modified to eliminate the source node (pruned) or is an empty trace element left behind? Second, when a constituent is moved to another section of the tree, is a structure created to make room for it to move to, or did the generative phrase structure component originally provide an empty slot on a (mathematically) fake node for it to move into? I am not sure that either question has a consensus answer, but this is unimportant. Both choices in each case present problems which are perhaps insoluble, making further discussion at this point fruitless.

Assuming that the choices outlined above are all made and the problems have been solved, the axiom set of GB could be stated and examined for internal consistency and appropriateness to real-language phenomena. It is an exercise that might repay C-lin researchers, because they would then be better equipped to examine in detail the consequences of the choices they have made and the additional postulates they assume. For me, the additional postulates are more accessible to examination, because they can be easily adduced from the writings of C-lin researchers. I now identify four such postulates and demonstrate, via a logical examination of

each of them, the kinds of difficulties that they give rise to.

III. The Four Postulates

Just as the axioms of GB have never been neatly and explicitly stated, so the postulates have never been laid out. However, it is easy to discern an actual postulate in C-lin writing by examining the functional characteristics of the statements in an argument. In short, a postulate is a statement which a) is not proved; b) is assumed to be true; and c) is an essential part of at least two arguments leading to a general conclusion (an informally stated theorem). I have chosen four such statements and examine them now.

III.1 The Universal Grammar Inaccessibility Postulate

The first postulate considered is presented in (3). I call it the Universal Grammar Inaccess-

- (3) "It is ... much too early to hope for a realistic proposal of this sort in the case of UG." (Chomsky 1980:9)

sibility postulate (hereafter UGI) because it asserts the impossibility of developing a well structured, formalized theory to provide the foundation of a universal grammar at the present time. In its original context it occurs right after (2), so there can be no doubt what it refers to.

But its significance is not so clear. For example, Chomsky might be saying that he himself is not competent to formalize GB fully or that the task is taking longer than expected, though people are working on it. I do not personally believe either of these alternatives. Instead, I think Chomsky is saying that there is too much work involved here and it is of too little interest to him to be bothered with. I am speculating, of course, but I believe this last possibility is at least part of the truth, as the development of a formalized foundation to linguistic theory was the intent of Chomsky 1955, which fell short of its goals.

In any case, the UGI postulate frees C-lin researchers from the responsibility of formalizing the theory and allows them to work on the development of the descriptive model without having to worry about the details of its theoretical foundations. This is not a desirable situation. Properly speaking, the process of postulating verities should be restricted to propositions which are either non-empirical ($a = a$) or cannot at present be proved (heliocentricity for Copernicus and Newton). Chomsky ought at least to be encouraging someone to take up the task of full theoretical formalization (and abide by the results, however painful) instead of postulating (falsely) that the formalization is not presently possible.

III.2 The Limited Exposure Postulate

The next postulate considered is given in (4). I call (4) the Limited Exposure postulate (hereafter LE).

- (4) Language is acquired on the basis of *limited* evidence (Chomsky 1980:34).

The significance of LE depends on the meaning of *limited* in this context. For example, *limited* could simply mean "finite". But this interpretation would make LE an observation so weak as to be almost worthless. LE would be a stronger postulate if *limited* meant "less than we would reasonably expect to be necessary and sufficient to account for the acquisition that does occur". This interpretation is not an unreasonable one. But as UG has been developed under LE, it is clear that LE should be interpreted with a much stronger meaning for *limited*: "less than can possibly explain acquisition". So much less that at least part of the explanation

for acquisition must resort to the genetic patterning of particular linguistic structures in the DNA.

However, whatever the real meaning of *limited* and whatever Chomsky's intent in this case, LE is not a proper postulate either. As mentioned above, the process of postulating verities should be restricted to propositions which are either non-empirical or cannot at present be proved. The LE claim is fully empirical and open to verification. At the very least, research on language acquisition (especially relative to LE) should be an ongoing and important part of C-lin work. The findings of this research should then be incorporated into C-lin theory as soon as their significance is understood. There can be no justification for simply assuming LE.

III.3 The Unique Model of Language Postulate

The Unique Model of Language postulate (hereafter UML) is given in (5). My formula-

- (5) There is one and only one theory of language (Chomsky's) and one and only one descriptive model (Chomsky's current version) in that theory.

tion is used for UML because it has never appeared in print as such. In fact, it is an accepted postulate at a very deep, almost reflexive level of the C-lin psyche, so that it has become more of an attitude than a formal postulate. Still, every now and then its effect surfaces in an inappropriate use of the definite article, e.g. *Aspects of THE Theory of Syntax* (Chomsky 1965) or *Introduction to THE Theory of Grammar* (Van Riemsdijk and Williams 1986), to give two examples.

I point out above that UGI and LE are not valid postulates because they are propositions which can and should be tested empirically and not simply postulated. UML is also an invalid postulate. Unlike UGI and LE, however, UML need not be tested further. It can be shown to be invalid logically and empirically. I take the logical analysis first.

The current standard GB model is given in figure 1. Here the X-bar rules generate output

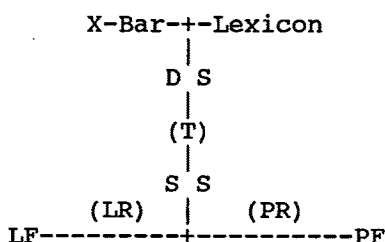


Figure 1

which, when combined with the selection of items from the lexicon, produce the deep structure (DS). These structures undergo transformation into surface structures (SS) in the transformational component (T). The surface structure is related to logical form (LF) by the logic rules (LR) and to the phonetic form (PF) by the phonetic rules (PR). To explain this C-lin model I subject it to black box analysis, a standard engineering procedure applied to dynamic systems whose architecture is unknown or not directly observable. The first step in this procedure is to draw a black box around the model in figure 1, separating the testable or observable portions from the rest. In figure 1, only LF and PF make direct empirical claims, and only PF is directly observable. All the rest, X-Bar, Lexicon¹⁰, DS, T, SS, LR and PR, are hypothesized abstractions. They are the joints and conduits adduced to relate the real-world entities LF and PF. This is diagrammed in figure 2 on the following page, where the little circle ° indicates the borders of the box. UML claims that there is only one possible way to fill the black box, and

that is with the current GB model. Of course, the model has evolved over three decades and no doubt will continue to evolve in response to further research in C-lin.¹¹ Still, the current GB model is assumed to be the best possible and only real model (or theory) presently available. The problem is that UML violates what we know of black box analysis from other disciplines. That is, given a black box with such an input-output pairing between LF and PF, as in figure 2, it is possible to prove that there is at least one way to relate them. It is not possible to prove that there is *only* one way to relate them.¹² The UML claim to uniqueness is therefore wrong from a logical point of view.

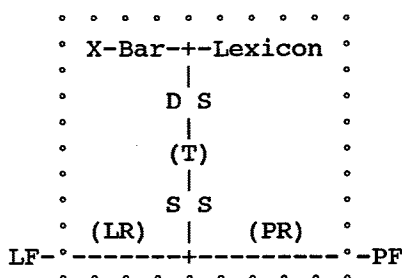


Figure 2

Beyond that, UML is wrong from an empirical point of view. The black box of figure 2 could just as well be filled by McCawley's (1980) Un-Syntax as by GB. This is diagrammed in figure 3, where the rules of logical combination (RLC) generate logical structure¹³ (LF). The logical structures are also subjected to pre-lexical transformations (TPL), lexical-insertion transformations (TLI), and morphological transformations (TM) to produce the surface structures (SS), which are in turn related to phonetic form (PF).

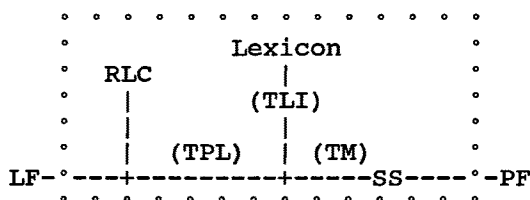


Figure 3

Now compare the models in figures 2 and 3. First, they make the same external claims, i.e. that $LF \iff PF$. But the internal architecture of the two boxes is quite different. For example, whereas Chomsky's generative component (X-Bar rules) produces "pre-linguistic" structures, McCawley's (RLC) produces logical structures (or LF) directly; whereas Chomsky's internal architecture is intended to be centrally syntactic, McCawley's is logical and morphological (and hence, *unsyntactic* in nature). Two different internal architectures corresponding to the same external claims is exactly what black box analysis says is possible.

In short, more than one model is possible within C-lin theory. Similarly, I could show that it is possible to construct more than one theory to generate the grammatical sentences of a language. But since my interest is in language and language is considerably more than a set of sentences, I leave this exercise to the interested (C-lin) reader.

Thus UML is wrong both logically and empirically. It is an invalid postulate.

III.4 The Universal Grammar Existence Postulate

The last of the postulates I examine here is given in (6). I call it the Universal Grammar Existence postulate (hereafter UGE). Now UGE is not empirical. Therefore, unlike UGI, LE, and UML, it is a potentially valid postulate. However, close scrutiny will show that it is not properly a postulate and that it has a fatal flaw in its logical structure.

- (6) "The approach I will pursue here can be justified only in terms of its success in unearthing a more 'elegant' system of principles that achieves a measure of explanatory success. To the extent that this aim is achieved, it is reasonable to suppose that the principles are true, that they in fact characterize the language faculty, since it is difficult to imagine that such principles should merely hold by accident of a system that is differently constituted." (Chomsky 1981:14-15)

UGE is not a simple proposition. In order to examine it properly, we must decompose it into its ¹⁴ propositional components and identify the logical relators between these propositions.

The first proposition in UGE is given in (7). In fact, (7) is also logically complex. It postu-

- (7) To the extent that this aim [unearthing a more 'elegant' system of principles that achieves a measure of explanatory success] is achieved,

lates the existence of a particular system of principles with incompletely defined characteristics and the possibility of discovering them. But we can stipulate, for the present, both the existence of these principles and the modality of discovery and simply refer to this statement as proposition *p*. It is clearly the fundamental hypothesis of UGE.

The second proposition in UGE is given in (8). The verbal "reasonable to suppose" is just a

- (8) it is reasonable to suppose that the principles are true ... (and) characteristic (of) the language faculty

hedge which can be ignored from the point of view of logical structure. Concluding that the principles are "true" is logically redundant, and this comment is also ignored. The full thrust of (8) is the simple conclusion that the principles discovered in (7) are "characteristic of the language faculty". Thus (8) may be designated as a simple proposition *q*, which is the ultimate conclusion of UGE. This proposition is of crucial significance in GB, as it designates the elements of language which, when fully discovered and properly grouped, form Universal Grammar.

The third proposition in UGE is given in (9). It is a secondary hypothesis which has a ver-

- (9) such principles should merely hold by accident of a system that is differently constituted

bal hedge ("merely") and a modality ("should"). But these are of little overall significance in the logical structure of UGE and they may be ignored. Thus the third clause may be designated as the proposition *r*.

There are two other expressions in (6) that pertain to the logical structure of UGE: "since" and "it is difficult to imagine". "Since" can be used to indicate that there is a cause-effect relation between hypothesis and conclusion. This makes a very strong claim, possibly stronger than can be proved empirically and probably stronger than need be posited. But I stipulate

this too, since cause-effect entails implication and is thus compatible with the hypothesis-conclusion propositions discussed above. Otherwise, the "since" can be ignored.

Conversely, the phrase "it is difficult to imagine" is most important. I understand it as negation. It is phrased as a hedge. However, if I am correct as to its significance, it cannot be ignored. Negation is an attribute of a proposition and is symbolized by placing a $\sim$ before the relevant proposition.

Combining all of these considerations gives the formula in (10) as the logical structure of

$$(10) \quad [p > [\sim r > q]]$$

UGE, where ' $>$ ' should be read as implication. Now there is nothing wrong with (10). It is a well-formed formula which is on its face a perfectly reasonable postulate.

However, we have not yet fully plumbed the significance of UGE. I assume that the phrase "hold by accident" in (9) means that any such arbitrary or accidental principles are not part of UG. This means that proposition r is actually the negate of q : $r = \sim q$. Substituting this identity into (10) gives (11), which changes the entire picture. (11) still contains a well-formed for-

$$(11) \quad [p > [\sim \sim q > q]]$$

mula, but it is no longer a postulate, as the term is defined above. It can be proved logically, which means it is properly a theorem and need not be postulated. A Fitch system proof is given in (12).

(12)	1 $_p$	hyp
	2 $_ \sim \sim q$	hyp
	3 q	2, neg, elim
	4 $\sim \sim q > q$	2-3, imp int
	5 $[p > [\sim \sim q > q]]$	1-4, imp int

The proof in (12) shows that (11) is indeed a provable theorem rather than a postulate. By itself this is unimportant. It means only that Chomsky has postulated something he could have proved and thus, by his own criterion, should not be part of the theory of language. The validity of UGE is in no way affected. With UGE as a theorem, the theory architecture would be equivalent to the architecture of the theory as now developed.

There are, however, two troubling facts about UGE that the proof in (12) makes clear. First, there is no cause-effect relation between the hypothesis p and the ultimate conclusion q : p appears only in the first and last steps of the proof but plays no role in the proof of q . It is, in short, a proposition whose actual relation to the expression $[\sim \sim q > q]$ is merely incidental. That is, $[\sim \sim q > q]$ can be proved independently of any other hypothesis. Therefore it is always possible to append a proposition to $[\sim \sim q > q]$ as a consequence of a theorem called added condition (Fitch 1952:31). In fact, the proposition added (here called p), can be any proposition at all, be it false or paradoxical or even absurd. However, though no claim of cause and effect can be maintained, this is not a major difficulty. The relationship between p and $[\sim \sim q > q]$, though incidental, is still a logically valid implication.

The other troubling consequence of UGE is important. Note steps 2 and 3 of the proof: q is derived from $\sim \sim q$ by a rule called *neg, elim* or double negation elimination. In fact, in the Fitch system, $\sim \sim q$ and q are logically equivalent. This means that q is true in UGE because its logical equivalent has been assumed. Rhetorically, this is called "begging the question" or assuming the conclusion you want to prove. More accurately, in this case, the conclusion is that q is true because it cannot be false. In blunt terms, UGE says that these principles are principles of UG because they have to be. No other reason is given or even necessary under this assumption. Moreover, the conclusion holds whatever the form of the principles un-

earthed, even if they are false, paradoxical, or absurd.

I consider this a very disturbing consequence of UGE.

IV. The Significance of the Postulates

IV.1 Summary of the Findings

Of the four postulates studied, UGI, which postulates that GB is not yet formalizable, and LE, which postulates that children do not have sufficient exposure to language data to account for their acquisition of language, are empirical claims. The former is definitely wrong; the latter is probably wrong. In any case, since it can be tested under present circumstances, it should not be assumed until it is tested. UML, which postulates that there is only one model/theory of language, is both empirically and logically wrong. And UGE, which postulates the existence of general explanatory principles of language, is not a postulate but a theorem, so phrased that it cannot be false.

IV.2 Discussion

The negative judgements on the four postulates studied above make it impossible to understand why they have not long since been abandoned or why they were articulated in the first place. Perhaps the fallacies have never been noticed, but this can only be because the postulates have not been scrutinized as postulates. Still, the logical scrutiny of the postulates of a theory is a reasonable activity for people who care about that theory. Thus the questions remain unanswered.

Under the circumstances I can only speculate about the reasons for this situation, but a possible pattern can be identified. Specifically, UGE says there are general principles of language. LE says that these principles are not completely dependent on (or explicable by) the ontogeny of language use. Therefore the explanation for the principles must be sought in the nature or internal architecture of language itself. UGI says that the general principles cannot at present be stated in logically formalized fashion. But if they exist, it follows that they must be somehow statable. UML provides the only acceptable means for describing the architecture of language. Therefore, the general principles of language must be stated in terms of the only acceptable model. Finally, UGE says that these principles, as stated in the only acceptable model, must be right because they cannot be wrong. Moreover, this conclusion applies not only to the principles stated as part of GB but also to the way in which they are stated, even though it is obviously a GB-specific formulation. The result of this is an unassailable fortress.

Now I do not claim that anyone ever reasoned about GB or any other incarnation of C-lin in so explicitly cynical a fashion. However, if something like this reasoning is implicit in the philosophy which underlies C-lin research, we can predict that certain consequences should follow. A look at the history of C-lin research will then tell us whether the predictions are accurate.

IV.3 Consequences and Predictions

Recall that whatever conclusions proceed from UGE may be false, paradoxical, or even absurd. Of course, they may be true. If so, they are only accidentally true, and they can have only an accidental or arbitrary relation to anything else. From this we may conclude that the model is arbitrary. Since the principles of UG are phrased in relation to the current model, the principles of UG may be either arbitrarily phrased or inherently arbitrary.

The first prediction is that some of the universals which are unearthed will be arbitrarily phrased. That is, they will be phrased in terms of the model and without any relation to the real world. For example, consider deep structure. Deep structure is primary. It underlies surface structure and logical and phonetic form. Deep structure is universal. Constituents in

deep structure are linearly ordered. Therefore, there must be a universal underlying word order. Perhaps no one takes this claim seriously any more, but for some years during the *Aspects* period of C-lin, a lot of time and research effort was wasted on attempts to discover just what the universal underlying word order was.

Another arbitrarily phrased universal was the assumption of a universal phonetic alphabet composed of universal "distinctive" features. For a complete discussion of this mistake and an empirical demolition of the premisses involved see Sampson 1974. So far as I know the Sampson article had no effect on C-lin phonology. This demonstrates that arbitrary phrasing, if properly constituted, can win out over empirical science.

The second prediction is that some universals will be inherently arbitrary. That is, they need not be the way they are in the model, but according to the axiom structure by which the model is defined, they are arbitrary. For example, it can be demonstrated in the current model that theta roles are biunique. Theta roles seem to be the current C-lin attempt to account for semantic role relations in syntax. Each argument in a sentence has no more than one theta role assigned to it. This results from the assumption that the structures in syntax are trees. An upward AND relation is necessary to describe the relation of a given argument to two or more roles. Trees can have no upward AND nodes in them. Therefore the theta-argument relation is one-to-one or biunique.

Another inherently arbitrary characteristic of GB architecture is the separation of logical form from deep structure and theta role assignment.

Many more examples could be adduced, but they would differ only in number, not in substance. In short, the predictions made from our findings on the four postulates are borne out.

V. A C-lin Retrospect

My logical examination of four postulates of Government and Binding theory has only scratched the surface of C-lin. It shows that these basic postulates of "the" theory are invalid logically, empirically, or both. As a result, the theory derived from them has holes in it, holes of such a nature and of such degree as to be devastating to the theory from both a logical and a functional point of view. Moreover, it is clear that "the" theory is not a theory of language¹⁵ but a theory of some parts of the structure of language. Add these two shortcomings together and we come up with the real mystery: why anybody attempts to apply this approach to linguistic theory to the description of language.¹⁶

NOTES

¹Not an unreasonable assumption, since one of the purposes of logic was to determine the meanings of words.

²With the notable exception of the much maligned and often misunderstood Hockett 1968.

³Professor Al Bednarek of the Department of Mathematics at the University of Florida has pointed out to me that the terms *axiom* and *postulate* are used interchangeably by most mathematicians. By the distinction I have drawn, set theory's Axiom of Choice should of course be called the Postulate of Choice. But this confusion in usage does not affect my overall argument.

⁴For example, in the manner of Bloomfield 1926 or Wells 1947.

⁵Both can lead to the production of "non-convergent" statements or structures, which puts C-lin outside the scope of well-formed and provably consistent theories defined by Gödel's theorem.

⁶If only one theorem were involved, it would be impossible to distinguish between a postulate and an ad hoc assumption or particular hypothesis.

⁷Or, in Chomsky's words, was a "premature" attempt.

⁸C-lin writing almost never distinguishes between theory and model, and Chomsky himself has commented more than once that for him they are, in a sense, the same. I will not expound further on the significance of this conflation, though it would be a topic for discussion in a more global criticism of GB.

⁹Alternatively, deep structures are related to surface structures via the transformational component.

¹⁰Whether the lexicon is independent of the model or is part of it is open to question. I believe it is the latter, though neither way affects the present discussion.

¹¹Each time I have heard this comment, it was offered as a compliment to the flexibility and responsiveness of GB, rather than as an indictment of the premature enshrinement of hypotheses as a part of the theory.

¹²Of course, given two or more functionally equivalent models, it is possible to prove which, if either, is better. But this requires a workable simplicity metric, which C-lin researchers have failed to produce and now consider "uninteresting".

¹³In McCawley's terminology. I am not claiming that McCawley's LF is identical to Chomsky's, but it need not be. It is important only that both aim at some kind of logically structured statement which makes empirical claims about meaning.

¹⁴I do a certain amount of phrasal re-juxtaposition and referential editing; the reader may judge whether I have introduced infelicities.

¹⁵I assume that all of language should be of interest to someone who is searching for universals of language or general rules of language acquisition.

¹⁶My research for this paper was not devoid of assistance from Chomskyan linguists, as the total lack of acknowledgements would seem to indicate. Indeed, I had a good deal of help from more than one GB-believing colleague. Most of them were either indignant that I had been so ungrateful as to turn their explanations into criticisms or hurt that I had been so mean-spirited as to criticize something they believe in so fervently. Most strongly, however, I felt a unanimous sense of embarrassment, lest anyone might discover their part in my enterprise. Therefore, I am leaving the Chomskyan linguists who helped me anonymous. In addition, I wish to make sincere apologies to anyone who feels that I bit the hand(s) that fed me. That was never my intention.

REFERENCES

- Baker, C. L., and M. K. Brame
1972 "Global Rules": A Rejoinder. Lg 48.51-75
- Bloomfield, Leonard
1926 A Set of Postulates for the Science of Language. Lg 2.153-64
- Chomsky, Noam
1955 *The Logical Structure of Linguistic Theory*. Mimeographed, the MIT Library, Cambridge, MA
1957 *Syntactic Structures*. The Hague: Mouton
1965 *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press
1980 *Rules and Representations*. New York: Columbia University Press
1981 *Lectures on Government and Binding*. Dordrecht: Foris
- Fitch, Frederic Brenton
1952 *Symbolic Logic*. New York: Ronald Press
- Hockett, Charles
1968 *The State of the Art*. The Hague: Mouton
- Lakoff, George
1972 The Arbitrary Basis of Transformational Grammar. Lg 48.76-87
- Lewis, Ralph W.
1987 Theories, Concepts, Mapping, and Teaching. In *The University Bookman*, Summer, 1987, pp 4-10
- Lockwood, David G.
1975 Quasi-Etymological and "Natural" Phonology as Two Varieties of the Same Mistake. In *The First LACUS Forum 1974*, Adam Makkai and Valerie Becker Makkai (eds), pp 446-57. Columbia, S. C.: Hornbeam
- McCawley, James D.
1980 An Un-Syntax. In *Syntax and Semantics 13: Current Approaches to Syntax*, E. Moravcsik and J. Wirth (eds), pp 167-94. New York: Academic Press
- Sampson, Geoffrey
1974 Is there a Universal Phonetic Alphabet? Lg 50:236-59
- Sullivan, William J.
1977 Raising: A Stratificational Description and Some Metatheoretical Considerations. In *The Second Annual Linguistic Metatheory Conference Proceedings 1977*, James P. Wang (ed), pp 47-92. East Lansing: Department of Linguistics, MSU
- Van Riemsdijk, Henk, and Edwin Williams
1986 *Introduction to the Theory of Grammar*. Cambridge, MA: MIT Press
- Wells, Rulon
1947 Immediate Constituents. Lg 23.81-117

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HILLFORT NOMENCLATURE IN INDO-EUROPEAN:
 THE CASE OF LATIN urbs
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1.0 The classic Latin term urbs, -is, f. 'fortified town, city' has been considered by most scholars an etymon of uncertain origin. This stance is due, in part; to the paucity of possible cognates, cognates that would permit, concurrently, the unraveling of a clear line of semantic development and a satisfactory phonological and morphological solution. In the following pages, I would like to suggest that indeed, a number of homological parallels do exist which could shed light on the possible semantic development of Latin urbs. Such parallels, together with archaeological and historical data, would facilitate the identification of a number of cognates, both within Latin and other Indo-European languages and thus lead to an acceptable etymological explanation.

Phonologically, Lat urbs, -is, might represent *wr-b(h)-, the zero-grade of an extended P(roto)-I(ndo)-E(uropean) form *wer-b(h)- derived from a PIE root *wer- with the meaning of 'turn, twist, bend'. The extended form, in referring to branches, twigs or shrubs, signified a 'flexible, bent or crooked twig or branch'; cf. Lat verber, -eris, n. 'twig, switch'. Such versatile material was used for a variety of tasks as suggested by the Lat verberare 'to strike with a flexible rod, to flog'; OIc varp 'to turn or twist withes or threads, to weave'; Goth wairpan 'to hurl'. Evidence from material culture indicates that another activity employing pliable withes was the construction of plaited hurdles. Hence, I would like to suggest that semantically, the term designating the pliable withes may have shifted by synecdoche to indicate a woven fence. As these types of fences were used to enclose areas, ultimately, Lat urbs by metonymy may have changed from meaning a 'wickerwork dwelling enclosure' to meaning simply a 'dwelling place'.

The phonological and semantic reconstruction I would like to offer is based not merely on linguistic data, but on archaeological and literary evidence. Together they suggest that the semantic components of the Latin term urbs reflect both the materials and the actual technology employed in the construction of a wooden barrier used to circumscribe a dwelling place.

2.0 Indo-European scholars have attempted to find cognates for Lat urbs in other Indo-European languages. Of those found, none could be linked plausibly on both

phonological and semantic grounds. Consequently, some scholars have posited a loan¹. Meillet, in his historical sketch of Latin, suggests an Etruscan origin (Meillet 1933:82). Benveniste, more cautiously, points out that the hypothesis of an Etruscan borrowing is unsubstantiated but offers no further explanation (Benveniste 1969:367). Georgiev (1938:198) also discounts the idea of borrowing. He states in fact, that urbs is a true Latin word and proposes a derivation from a PIE form *ǵhordh-o-s 'enclosure' from a root *ǵher- 'to grasp, to enclose'.

Georgiev (1938:199-200) explains the derivation of Latin urbs from PIE *ǵhordh-o-s in the following manner: the PIE palatalized velar aspirate *ǵh becomes prehistoric Latin *h, PIE *o before *r plus consonant becomes Latin u (fornāx > furnus), while the PIE dental aspirate *dh after *r becomes Latin b (uerbum, NHG Wort 'word'). Georgiev further notes that the Latin i-stem is a mixed declension modeled after the o-stem declension, as is for example fons m., f. from *fontos besides Fontus (Leumann 1963:341). Therefore, PIE *ǵhordh-o-s/-i-s > *hurbis > *urbs. Georgiev does not seem bothered by the disappearance in Latin of the initial /h/. He states that in prehistoric Latin, the */h/ was a very weakly uttered sound and several terms were handed down without it. He cites the example of anser < *hanser, NHG Gans 'goose' from PIE *ǵhans. As additional evidence for this situation, he offers old Latin inscriptions such as ostiam for hostiam. Thus, Georgiev believes, it should not be difficult to derive from PIE *ǵhordh-o-s both Latin urbs and Slavic gradъ. As supporting evidence for his reconstruction, Georgiev enumerates several cognates. From the extended o-grade form he cites OBg² gradŭ 'citadel, city, garden'; NBg grad; Russ gorod 'city'; Alb garth, -dhi, pl. gierdh 'hedge, fence'; ON garðr 'fence, fortified place, courtyard, garden'; OE geard; OS gard 'enclosure', pl. 'pile dwelling'; Goth gards 'house'; Fris -gordum as well as -zordum 'city'; and Lith gařdas 'pen'. To account for Lith gařdis 'lattice, railing', žařdis (zāřdas) 'enclosed pasture for horses, pen'; OPruss sardis 'fence', Georgiev proposes in addition to the PIE reconstruction *ǵhordh-o-s, another protoform: PIE *ǵhordh-i-s.

Georgiev's solution presents more than a few phonological inconsistencies. Setting aside the ambiguous realization in Slavic of the IE *-ǵh-, (Shevelov 1965:141-45), if one assumes that PIE *ǵher-dh- is an extended form of the root *ǵher- 'fenced, enclosed', it becomes difficult to explain the association with the list of cognates of Alb gardh 'hedge'; Skt grhā- 'house' or even Hitt gurtas 'fortification' (Pokorný 1959:439-444). These cognates are problematic because

they require the reconstruction of a non-palatalized velar aspirate but Lith žárdas 'drying rack', žárdis 'corral'; OPruss sardis 'fence'; Russ zoród 'granary'; and Fris -qordum: -zordum require the reconstruction of a PIE palatalized velar aspirate. As for the Germanic set, this might derive either from a PIE *ǵhordh-o/i from a root *ǵherdh-, or better yet, from an extended PIE form *ǵhor-tó/i > Gmc gard-a/i from a PIE root *ǵher- 'grasp, enclose'. If a PIE *ǵher- is assumed, than one might add to the list of cognates Gk χότρος 'fenced enclosure'; OIr gort 'seeded field', lub-gort 'vegetable garden'; Bret garz 'hedge, fence'; Welsh garth 'pen'; and even the zero-grade Lat hortus, co-hort- (i-stem) 'enclosure'. If, however, one assumes a PIE *ǵherdh-, other cognates might be added to Georgiev's list, for example Skt grhām < *grdhā- 'house' and Alb gardh 'hedge'. In such a case, one might suppose with Hirt (1898:333) a borrowing from Germanic of Lith gařdas, OSl gradz 'enclosure, city'. Hirt, in fact, points to OSl vinogradz: Goth weina-gards as the obvious loan for the Slavic cognates. In addition to phonological problems, Georgiev's solution presents also some morphological inconsistencies; for example, all the other words he presents with the meaning of 'town' are feminine consonantal stems, while Gmc *garda is an o-stem (Olc garđr m. 'hedge, garden, court'; OE geard m.) and the protoform *gardi represents the i-stem.

3.0 Meringer connects Lat urbs with OCS vrŭba 'willow' and Lith viřbas 'twig' and suggests a derivation from a PIE *wrbh-is (Meringer 1904/1905:157), from a PIE root *wer- 'turn, twist, bend'. There are a number of cognates that support this etymological connection: Lith viřbėti 'twitch', viřbas 'rod, twig', viřbalas 'knitting needle'; Latv viřbs 'twig, rod'; OSl vrzba 'withé'; Russ verba 'willow branch', voroby 'spool'; Lat verbēna, -a, f. from *verbes-nā 'sacred branch'; OE warp 'a weave, to weave'. The latter term was used to gloss Lat vīmen 'willow twigs', in addition to referencing both 'cloth' and 'threads running lengthwise and crossed at right angles by the woof'; it even signified other artifacts resulting from a latticing, as for example Olc varpa f. 'fishing net', varp n. 'casting (of a net)' as well as actions performed by turning or twisting, cf. ON varpa 'to fence, hedge', hlað-varp 'to fence around a house'; Goth wairpan 'to hurl'.

The PIE root wer- appears to have a variety of shapes and a number of root extensions (Pokorny 1959:1151-59). It seems obvious that common to all these roots is the notion of 'turn, twist'. Roots with the extensions *p/*b/*bh³ have the meaning of 'turn,

twist or bend' in association with branches or twigs (Meringer 1904/1905:157). The alternation of the root extensions *p/*b/*bh may reflect consonantal gradation in the protolanguage. This phenomenon may have been determined by the phonetic shape of the entire word, specifically, by whether the segment occurred in an open or closed syllable. Perhaps this consonantal alternation was initially strictly phonological, then it became morphophonemic, and later disappeared without trace. The nature and the function of these extensions require further elucidations which are beyond the scope of the present paper.⁴ However, grammatically we might classify the extended zero-grade form wrb(h)- as a verbal adjective with the meaning of 'bent, crooked, flexible' which acquired a substantive function with the meaning of 'twig, switch, branch'. This process is not uncommon and frequently takes place when habitual association between an adjective and a substantive results in the adjective incorporating the idea expressed by the substantive to which that adjective was often applied: cf. Lat dextra. It is also worth noting that an adjective which denotes a quality that is inherent in the nature of the object may exhibit a verbal character implying a continuous, momentary or inceptive action and become grammatically a participle⁵ (Brugmann 1888:456 vol. II). It is conceivable then, that the prehistoric form for Lat urbs initially had the meaning of 'flexible (twig)', and later that of '(flexible) twig'. As these types of twigs were used to manufacture hurdles used to enclose an area, the term came to indicate first the woven fence (cf. Lat vallus 'post, stake' > Lat vallum 'palisade'), then by metonymy, the enclosed area itself.

These semantic developments are generally very difficult to sort out, especially if they took place in the protolanguage. Cognates, in addition to cultural evidence, however, lend support to this linguistic supposition. Indeed, Meringer states that in Indo-European culture, a woven fence was used to enclose a defensible space. In time of danger, valuables were placed in this protected area. Moreover, the practice of delimiting an area to protect valuables foreshadowed the creation of a city. Thus as Meringer suggests, the shift in meaning of 'twig' to 'fence' to 'town' from a PIE *wer-b(h)- is no more remarkable than that between OHG zūn, German Zaun 'hedge, fence' and ON tūn, English town from a PIE *dhūn-o- (Meringer 1904/1905:157).

4.0 An investigation of the techniques used in manufacturing a wall or a fence could prove useful in our semantic search for traces of meanings associated with 'building' techniques or even 'materials' which might be reflected in some of the other words designating an

'enclosed, fortified place'. In this manner, the aforementioned thesis on the semantic development of Lat urbs might be validated. For our purpose a number of homological parallels are available. In Indo-European languages several terms express the concept of 'city', 'town', or 'village'. Some Indo-European words merely denoted 'a place'; others 'a dwelling place'; still others referred to 'a state'.⁶ However, a significant number of terms seem to have denoted an 'enclosed' and fortified place' (Buck 1949:1308). In addition to social factors, technology might be the element in part responsible for these nuances. And indeed, with regard to craftsmanship, we find through archaeological evidence that willow twigs were ordinarily used to intertwine timber in a construction later referred to as 'wattle-and-daub' (Piggott 1965:46).

Archaeological evidence from Western, Central and Eastern Europe indicates that even during the Aurignacoid (Gravettian) period (35,000 - 10,000 B.C.), the construction of artificial shelters involved the plaiting together of poles, rods, twigs, reeds and the like (Clarke & Piggott 1965:75). The construction of wattled shelters was not limited to that of small huts but appears to have also involved the construction of enclosures. Some scholars postulate that the Late Paleolithic 'longhouses' found in southern Russia were in reality wattled enclosures⁸ containing several family units (ibid.). The building of settlements protected by woven hurdles continued during the Neolithic Period. Indeed, the rise of pastoralism in the Late Neolithic and the advanced domestication of animals may have further contributed to the spread of wickerwork technology⁹ as evidenced by the palisaded kraal at Anlo, Holland dated at about 2300 B.C. (Piggott 1965:85-87). Archaeological data further reveals that fortified sites identified as Indo-European were usually surrounded by ditches and protected by palisades or earth-work banks. More common were timber-framed ramparts which utilized woven hurdles (Piggott 1965:202-7). Even later, when defenses were constructed of sun-dried bricks they were framed by timber lacing construction (Clark & Piggott 1965:210). Thus, the plaiting of wickerwork construction, which later eventuated in the more technical crafts for the manufacture of numerous objects, such as basketry, mats, pottery, the weaving of cloth and the spinning of yarn, must be numbered among man's most fundamental achievements.

5.0 Diverse literary sources substantiate archaeological finds. Palmer (1972:342) reports Ovid as saying "et paries lento vimine textus erat" - "and the wall

was woven from supple withe". This willow wickerwork was smeared with mud. Vitruvius describes the process as follows: "alii luteas glaebas arefacientes struebant parietes, materia eos iugumentantes, vitandoque imbres et aestus tegebant harundinibus et fronde" - "Others made walls, drying moistened clods which they bound with wood, and covered with reeds and leafage, so as to escape the rain and heat" (2.100.1.3).

The early importance of this type of wickerwork construction -- a form of plaiting or weaving after all -- is reflected in the history of certain words for 'building' and for many objects which have since ceased to be associated with 'construction' as for example the German noun Wand 'wall' which is related to the verb winden 'to interwind', cf. OE windan manigne smicerne waen: 'to weave many a fine wall'. Another term can be adduced here which reflects the wattle-and-daub construction: OCS plotŭ 'fence'; MRuss plotnik 'carpenter' both derive from PIE *plek-, as do German flechten 'to plait'; OE fleohtan 'to plait, to fold, to twine' and OF pleit from *plicitum, Lat plicāre 'to fold, to twine'. The more modern French form bâtiment 'fortification' comes from Common Gmc *bastjan 'to plait, to sew', which also yields NE baste 'to sew'. Lastly, the transition from 'twig' to 'barrier' is reflected in Lat vallus m. 'post, stake', vallum nt. 'palisade' and NE wall; while Lat fossa 'ditch', fossatum 'entrenched' and Alb fshat 'village' reflect the transition from 'fence' to 'dwelling'.

The wattle-and-daub method of construction is identified in Greek by the word τέχος 'wall' < PIE *dheigh- 'to knead, mold, work in clay'. A suffixed zero-grade form *dhiġh- is realized in Lat figulus 'potter'; a nasalized form *dhi-n-ġh- in Lat ingere 'to shape' and also OE *dik(k)- > OE dīc 'moat, ditch, earth-work (rampart or trench)', NE dike in the sense of 'embankment' (cf. NE bastion). The o-grade, PIE *dhoiġh-o-s is found in Avestan daēza 'wall'; the compound pāiri-daēza meant literally 'a park with a wall around it, paradise'. The extended form *dhiġh-iā is realized in the Thracian suffix -δῖκος, -δῖκα 'fort' found in numerous place names. It is remarkable that so many Indo-European words designating 'a wall' mean 'wickerwork, or wattle' and reflect both the mode of construction and the materials used.

6.0 As stated earlier, the forms used to designate 'a fortified enclosed place' and which reflect the mode and or the materials employed in the construction of defenses vary according to the Indo-European branch, yet semantic components reveal similar developments. In Sanskrit, for example, the word for 'stronghold' pūr f. from the verbal root ṣ 'to fill, to pile up', hence

'to make a rampart',¹⁰ goes back to PIE plH-. The secondary meaning of 'citadel, high place' is also found in Gk pólis 'city'; Lith pilis and Lett pīle 'castle'. Literary evidence describes the Indian pūr as a fort capable of accommodating the royal household and valuables in time of danger (RV 1.189.2). Ordinarily, fortifications consisted of ramparts of hardened earth with palisades and a ditch (RV 6.47.2; 7.6.5). These defense works were of a temporary nature, and Vedic towns, fortified with wattled walls and ditches, were often destroyed by fire (RV 7.5.3).

In Celtic, a protoform *dhūn-o 'fortified place' is reconstructed on the basis of the Gail suffix -dūnum found in numerous place names; OIr dūn; Welsh din; ON tūn. Again, these terms originally appear to have the meaning of 'fenced-in place', cf. OHG zūn 'hedge, fence'. (Pokorny 1959:263). Polomé suggests in fact, that if this meaning implied "a lattice made of twigs, then the derivation from the root *dew- connected with the prehistoric use of trees and shrubs (words for 'shaft' [OHG zeotar], 'tether' [ON tjōōr, M.Du tuder], etc. are derived from it) becomes plausible" (Polomé 1983:285-6). And indeed, from the first millennium B.C., we find palisades and earth-works encircling villages in central Europe. These types of fortifications spread along with the Celts. They are regarded as "an increasingly insistent feature of Celtic prehistory" (Piggott 1965:202).

But what of the Italic branch? The Latin vocabulary is rich in words designating a fortified area. The term for 'fort' with a close semantic equivalent seems to be Lat arx, -cis 'fortress, citadel, stronghold' < PIE *arek^w-e 'to close, to enclose, to fence'. Other Latin terms are: oppidum,¹¹ probably from ob-*pedum (cf. Gk pedion 'flat land, plain'); a late term castrum,¹² and of course urbs, to name but a few. The PIE root *pel- 'citadel, fortified high place' seems to be conspicuously absent, as is *dhūn-o 'stronghold, hill'. As for the root *bhergh-,¹³ we have only a Late Latin burgus 'fortified place', clearly a loan. PIE *-bh- becomes Latin -f- in initial position, therefore *bhrgh- becomes *forg- 'force'. From a suffixed zero-grade *bhrgh-to- possibly are derived Lat fortis; NE fort 'stronghold'. Finally, the PIE root *ghordh-o-s seems to have already yielded the cognate hortus 'garden'. Are we to think that the Italic branch did not possess a word to designate the construction of fortifications? Such a notion is highly unlikely, considering both the renowned technological abilities of the Romans as builders and their militaristic nature. Indeed, they crossed a continent on carts and when nightfall approached, they set up camp in a defensive circle; if they remained for

any length of time, they dug a ditch and/or wove a hurdle to encircle and fortify the site. As their technology improved, these works became the familiar fossa and vallum which surrounded the Roman camp. Worth noting again here is the development of Alb fshat 'village': Lat fossa 'ditch', fossatum 'entrenched' from PIE *bhedh- 'to bend'; as well as the development of OE wall: Lat vallum 'palisade', vallus 'post, stake'.

The examples given above lend credence to the claim made at the beginning of this paper, that the semantic components of Lat urbs reflect both the techniques and the materials involved in the construction of defense works circumscribing a dwelling place. Hence, the semantic transition from 'twig' to 'fence' to 'town' is not "an extraordinary occurrence", as Szemerényi stated (Szemerényi 1970:15). On the contrary, it is not an uncommon development in Indo-European.

7.0 In conclusion then, one attested occurrence such as the semantic transition of German Zaun 'fence' and English tūn 'enclosed dwelling place' from a common root does not mean that one will always encounter these semantic developments. Semantic shifts are unpredictable for they are caused by factors too numerous and capricious to be subject to rigorous investigative constraints. Nonetheless, even though it is impossible to formulate general laws of semantic change, etymological investigation must take into account the reoccurrence of some universal 'tendencies' which reflect both humans' biological make up and their anthropocentric view of the world. These two phenomena, in fact, represent one particular constant present in both the creation and the reinterpretation of semantic change. In particular, the biologically given capacity to perceive must be considered when unraveling semantic development. Perception is recognition of similarity and perceived similarity, whether of form, condition, function or other aspect of a particular object or occurrence, frequently results in the creation of metaphor, metonymy and the like. This process of nomination, just as frequently, yields homological parallels. Its mechanisms are particularly transparent with regard to vocabulary that reflects technological innovations. In technological jargon, figures of speech often arise as iconic descriptions of artifacts or processes in response to changes in the material culture when the speaker is faced by a novel situation. Successive changes in the material culture often leave behind mere faded metaphor, symbols with no overt relations that must be interpreted anew. Thus, in analyzing the semantic changes undergone by words

signifying material objects, one must not only carefully evaluate the evolutionary history of that particular item, but acquire both an understanding of the processes of perception and a thorough knowledge of the historical context. Indeed, historical knowledge is a necessary tool for assessing the sources of a particular notion as well as the contributing factors to that notion's metaphorical evolution.

This theoretical stance, together with the evidence uncovered by the preceding investigation invites the supposition that the term urbs 'a dwelling fortified area' earlier meant 'wickerwork enclosure'. At first, the term might have designated the action of 'turning, twisting' in association with turnable, twistable twigs or branches. With time, the expression probably underwent narrowing and designated 'flexible twigs or branches' generally used to plait hurdles. Further semantic development eventually ensued and, by synecdoche the term specialized to mean the entire 'woven fence'. These types of fences were used to enclose a dwelling place, therefore by metonymy arose the later meaning of 'enclosed fortified place'. Several homological parallels support this etymological explanation. Indeed, diverse terms with the meaning of 'enclosed and fortified place' also reflect the mode of construction and the materials used for it. The widespread occurrence of these semantic transitions may be due, in part, to the actual technology employed in the construction of fortifications surrounding Indo-European settlements, and in part to human perception itself. Archaeological and literary evidence support the assumption of the use of a common metaphor involving the 'construction' of fortifications. Linguistic evidence in Italic, in Celtic and even in Slavic, provide excellent homological parallels in support of this semantic reconstruction of the Latin term urbs.

NOTES

1. Scholars such as Devoto (Walde and Hofmann 1954:838) have assumed that the Italic people borrowed the term and the concept for 'city' from a non-Indo-European culture. Devoto, assumed a diffusion of the concept and of the lexeme from urban centers in Mesopotamia and Anatolia. However, Marija Gimbutas (1973:189) has effectively argued that during the fourth and third millennia B.C. urban townships with highly organized governmental and religious structures flourished in southeastern Europe, paralleling the developments in Mesopotamia and Anatolia. Archaeological data indicate that the Old European civilizations were disrupted by Proto-Indo-European invasions.

The Kurgan people first overcame Old Europe's townships, then established a series of fortified acropolises along their route of expansion. It is conceivable then, that if a borrowing took place, it occurred much closer to home and that the Indo-Europeans may have borrowed from the indigenous population they had conquered, rather than from a geographically distant culture.

2. In the interest of accuracy, I have tried to leave intact, as much as possible, both the forms and the names of the languages according to the sources consulted. For example, Georgiev prefers OBg rather than OS1 or even OCS.

3. Brugmann points out that PIE *-b- occurred very rarely in the protolanguage and not at all as a suffixal element. PIE *-bh- is even more rare, but we do find PIE *-bho-/*-bhā- as a secondary suffix of noun stems associated often with animals i.e. Skt rśabhā-s 'bull'; in Baltic it was usually used for the formation of abstract nouns derived from adjectives cf. Lith auksztỹbė 'height' from áukszta-s 'high'; or in nomen actionis darbū 'diligent' from dār-ba-s 'work' (Brugmann 1888:216-17 vol.II). Indeed the sound occurred very rarely. Suffixal elements with PIE *-p- are also non-existent except in rare cases of root extensions (Brugmann 1888:263 vol. II).

4. I have treated the possible derivation of the Indo-European -b- in a forthcoming article. Indeed, both phonology and grammatical methodology must be re-evaluated with regard to root extensions, for we must devise a more effective way to deal with polysemy.

5. Also worthy of note is that the types of substantives which express actions, states of being and so on, belong to the category of material objects. When nomina actionis denote material objects they may undergo further extension of meaning, namely, become adjectives (Brugmann 1888 :450-9 vol II).

6. These variations are not surprising when one considers that the evolution of cities is intimately connected with the evolution of economic, social, and thus political organization. Autarchy, for example, is an old form of government which focused on one leader surrounded by his court, and probably led to a circular settlement. Democracy, on the other hand, probably arose from colonialistic practices where equal shares were allotted and may have led to the city grid plan.

7. The latter meaning is not surprising when one considers the aggressive, warlike nature of the Indo-Europeans. Indeed, even considered material evidence indicates that the earliest Indo-European settlements, identified by Marija Gimbutas with the Kurgan tradition, were fortified sites (Gimbutas 1973:189).

8. This assumption is based on the notion that it must have been impossible to roof over shelters varying in length between 40 and 450 feet and in width between 15 and 17 feet.

9. The technology used by the early Indo-Europeans in the construction of fences, walls, or even dwellings must have been rooted in the Paleolithic. Indeed, the destruction of phase VI of the Karanovo site in Bulgaria by the first wave of the Eurasian steppe pastoralists reveals mud walled houses with a wattle core (Piggott 1965:46).

10. It is widely accepted that the etyma deriving from PIE *plH- meaning 'city, citadel, fortress' are so derived because the nouns reflect the action performed in creating a town. That is, by erecting palisades and filling them with earth, creating ramparts. The meaning 'which is filled' may have originally indicated the ramparts, but eventually it came to designate the entire area.

11. Latin oppidum is another problem of Latin etymology. It probably indicated the flat land, that is the part of the plain where people lived as opposed to the arx. The adverbial ablative oppidō would then be parallel to plāne.

12. The castrum 'fortified place' is a suffixed form *kas-tro- which derives from the PIE form *kes- 'to cut', Lat castrare 'to cut, to castrate'. In its older usage, it simply meant 'place cut out, delimited'; cf. Oscan-Umbrian castruo 'allotment, field'. The area was delimited by a ditch (fossa) and a mound (agger) surrounded by palisades (vallum).

13. The etyma found more often in Germanic are derived from IE *bherǵh > Gmc *bergaz 'hill, mountain'; OE beorg 'hill'; ON berg 'mountain'; and the IE zero-grade form *bhrǵh > Gmc. *burg-s, 'hillfort'; OHG burg 'fortress', Goth baurg, ON borg 'fortress, castle'; MHG burc 'fortress, castle'; OE beorgan, OHG bergan 'shelter, high place' (Pokorny 1959:140-41), from an old PIE consonantal stem.

References

- Anttila, Raimo. 1972. An introduction to historical and comparative linguistics. New York: Macmillan Publishing Co., Inc.
- Benveniste, Emile. 1973. Origines de la formation des noms in indo-européen. Paris: Librairie d'Amérique et d'Orient.
- Brugmann, Karl. 1888. Elements of the comparative grammar of the Indo-Germanic languages. Vol. 1, Introduction and phonology. Trans. Joseph Wright. New York: Westermann & Co.
- Buck, Carl Darling. 1933. Comparative grammar of Greek and Latin. Chicago: University of Chicago Press.
- _____. 1949. A dictionary of selected synonyms in the principal Indo-European languages. Chicago: University of Chicago Press.
- Clark, Grahame, and Piggott, Stuart. 1965. Prehistoric "societies". The history of human society, ed. J.H. Plumb. New York: Alfred A. Knopf
- Ernout, A. and Meillet, A. 1959. Dictionnaire étymologique de la langue latine. 4th ed. Paris: Librairie C. Klincksieck.
- Feist, Sigmund. 1913. Kulturausbreitung und Herkunft der Indogermanen. Berlin: Weidmannsche Buchhandlung.
- Georgiev, V. 1938. Latin urbs und orbis. Indo-germanische Forschungen 56:198-200.
- Gimbutas, Marija. 1973. The beginning of the Bronze Age in Europe and the Indo-Europeans. Journal of Indo-European Studies 1(2):163-214.
- Hirt, Hermann A. 1898. Grammatisches und Etymologisches. Beiträge zur Geschichte der Deutschen Sprache und Literatur (Halle) 23:288-357.
- Meillet, A. 1933. Esquisse d'une histoire de la langue latine. 3d ed. Paris: Hachette.
- _____. 1964. Introduction à l'étude comparative des langues Indo-Européennes. University, Alabama: University of Alabama Press.
- Meringer, R. 1904/1905. Wörter und Sachen. II. Indo-germanische Forschungen. 17:100-166
- _____. 1905/1906. Wörter und Sachen. III. Indo-germanische Forschungen. 18:204-296.
- Palmer, Leonard R. 1972. Descriptive and comparative linguistics. London: Faber & Faber.
- Piggott, Stuart. 1965. Ancient Europe from the beginnings of agriculture to classical antiquity. Chicago: Aldine Publishing.
- Pokorny, Julius. 1959. Indogermanisches etymologisches Wörterbuch. 2 Vols. Bern: Francke Verlag.
- Polomé, Edgar C. 1983. Celto-Germanic Isoglosses (Revisited). Journal of Indo-European Studies. 11.3&4:281-298.

- Shevelov, George. 1965. A prehistory of Slavic. New York: Columbia University Press.
- Szemerényi, Oswald. 1970. Einführung in die vergleichende Sprachwissenschaft. Die Altertumswissenschaft. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Vitruvius. On agriculture. 1945 ed. Loeb Classical Library.
- Walde, A. and J. B. Hofmann. 1954. Lateinisches etymologisches Wörterbuch. vol. 2. no. 3 of Naubearbeitete Auflage. Heidelberg: Carl Winter Universitätsverlag.

II

GENERAL LINGUISTICS

EXPLANATION, MENTAL REALITY AND CAPTURING HEFFALUMPS¹

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... and all the time Pooh was saying to himself, "If only I could *think* of something!" For he felt sure that a Very Clever Brain could catch a Heffalump if only he knew the right way to go about it. (A.A. Milne, *Winnie-the-Pooh*, p. 58)

What I have to say today is more in the line of a consultation than a scientific paper because I am, frankly, a bit mystified by a point of view which is fairly widespread in linguistic research today. It all started two or three years ago when I wrote an article (Hirtle 1988a) proposing a solution to a major problem of the English verb - the meaning of the simple form - a problem I had been reflecting on for some time. I submitted my study to a serious journal, one of whose articles I had cited a number of times, and it was refused. In itself this was not surprising since the type of linguistics I practise is not widely accepted. What did surprise me was the first reason for turning it down: "the underlying theory of Guillaume was lacking in explanatory power". This made me wonder how specialists, presumably well informed and well intentioned, could hold an opinion quite the opposite of mine. The only answer I could find was that we were here confronted with two very different views of what constitutes an explanation.

In the journal's comments, the only hint of an alternative view was a reference to Dowty 1979, which is based on an approach to language, Montague Grammar, involving a type of explanation quite foreign to the one I was accustomed to. Although I cannot be sure this is the type of explanation the journal editors had in mind, the issue is, I believe, of sufficient interest to bring before you today. Let it be quite clear: I am not here discussing Montague Grammar or Dowty's study as such, but rather the more general question of what constitutes an explanation in linguistics. Indeed, I believe Dowty's study typifies, in an extreme form perhaps, the approach of many linguists and linguistic schools today.

The crucial difference between Dowty's view and mine resides in the theoretical constructs on which an explanation is based. For Dowty (p. 375), such a construct, the "intension" of a word, "has in principle *nothing whatsoever* to do with what goes on in a person's head when he uses that word" (italics in the original). That is, there is no attempt to reconstruct, model, describe or otherwise call into play the preconscious mental processes the speaker undertakes in order to use a word. Not that the existence of these processes is denied. On the contrary, he defines the mental reality of meaning, called the "concept of a word", as "whatever it is in a person's head that determines how he uses and understands the word" (p. 384). Thus, the

¹ I am indebted to William Baker, Patrick Duffley and Roch Valin for comments on the original version of this text.

conditions governing how a person uses a word really exist in the preconscious. Although usage is determined or conditioned by this mental reality, the theoretical constructs on which Dowty bases explanation have nothing to do with it. In short, this type of explanation is not based on factors which determine or condition what is observed but rather, it seems, on idealizations, i.e. on abstract categories of meaning obtained by inductive generalization from observed meanings, categories with no correlate in the language itself.² By attributing a symbol to each such category, the analyst then describes a sentence in terms of these symbols. In other words, explanation here involves naming the general categories or forms within which each of the constituent meaning-elements of the sentence can be situated. This is a categorial or formalizing type of explanation which, if I am not mistaken, is reminiscent of disciplines like mathematics or logic.

Guillaume's theory, as is suggested by its very name — the Psychomechanics of Language — adopts quite the opposite standpoint: it bases all its explanations on what goes on in a person's mind when he uses a word (cf. Guillaume 1984 *passim*). That is, it postulates that the preconscious reality of any word (or grammatical system), which is quite beyond the range of any direct observation or "intuition", consists of a little mental program involving the set of mental processes a speaker must put into operation to produce that word. As a consequence, in Psychomechanics explanation consists precisely in trying to reconstitute the prior linguistic conditions "in a person's head" that determine the use or understanding of a word. This is essentially the same approach as that of other disciplines concerned with explaining observable phenomena. A geologist, for example, confronted with a certain formation, tries to imagine the elements and processes in "deep time"³ that were necessary to produce what he observes, just as an astrophysicist tries to postulate the elements and processes in "deep space" (and time) that were necessary to produce what he observes. Likewise for the linguist using the comparative method in historical linguistics: by comparing directly observed phonetic correspondences in the earliest texts, he tries to reconstruct the most likely antecedent sound from which they could develop. In all such cases, explanation involves a description of presumed prior conditions which appear to be necessary in order for the observed phenomenon to exist. It is, if you like, a generative type of explanation involving "causal relevance"⁴ since it is concerned with what leads up to and produces the facts to be explained. In linguistics, this type of explanation is necessarily "mentalist" since the facts to be explained — words and their use as observed in discourse — are determined by the speaker's preconscious language system which must come to

² In this respect expressions such as "capture a generalization", "capturing a large and important class" and the like are of interest. In its proper sense, "capture" is used of beings that already exist (a wild animal, an escaped prisoner, etc.) and this carries over to the metaphorical use in these expressions to give hypostatizing overtones.

³ For the concept of "deep time" as time of "an almost incomprehensible immensity" see Gould 1987, Chapter 1.

⁴ The expression is borrowed from Salmon (1975:120): "I shall agree from the outset that *causal relevance* (or causal influence) plays an indispensable rôle in scientific explanation...." (*italics in the original*).

grips with the particular experience (an entity which is outside language) he wishes to represent and express.

Each of these types of explanation has a serious drawback when applied to language. The categorizing, formalist type is based on abstract entities which have no existence outside the mind of the linguist who conceives them (and those fellow linguists to whom he manages to communicate them). Thanks to such idealizations, one might be said to "account for" the data, in the sense of putting a label on each of the observed facts, of reckoning where each fact fits (as in the expression "all present and accounted for")⁵. This approach may help bring out certain elements of meaning implicated in the word — a sort of explication or unfolding — but this is not the same as an explanation based on an understanding of the object under scrutiny. That is, because it postulates entities that are outside both the language and the speaker, this type of explanation, whatever its value for other purposes, fails to throw any light on the nature of language itself, the object of linguistics.

As for the generative type, the drawback with proposing an explanation based on the mental entities presupposed by what we observe of language is, of course, that such entities, by definition, cannot be observed. Again the parallel with other disciplines comes to mind. The need to theorize in science arises because the scientist is convinced that part of reality cannot be perceived. In fact, what escapes direct observation because it is in deep time or space or in micro-time⁶ or space constitutes the very matter of science: *Il n'y a de science que du caché* as Bachelard said. As a consequence, many consider that linguistics as a scientific discipline began with the exploring of deep linguistic time in the great work of the nineteenth century comparatists with a method of analysis that permitted them to go back in time far beyond what is directly observable in the most ancient texts.

Thus Guillaume was by no means the first to propose this type of explanation in the study of language but he was the first to propose a method of getting beyond the limits of what is directly observable in language use at the moment of speaking or writing. That is, he confronted the problem, not of going back in deep time before the first texts, but of going back in the present beyond what emerges into consciousness to explore how, in the moment of speech, the speaker produces the words that he utters. He had to find a way of probing the extraordinarily rapid operations of thought involved in language, preconscious operations whose duration is so short that they are said to involve "micro-time", which is time far too short to impinge on our consciousness. Only the results of these operations last long enough to emerge into the macro-time of the speaker's conscious awareness. The method he put forward is, like its nineteenth century predecessor, based on comparison and aims at "reconstructing" grammatical systems and lexical entities as they exist in the preconscious. Such an aim is a bold one fraught with so many pitfalls and difficulties that any results must, like the hypotheses of comparative

⁵ *To account (for)* "suggests a making acceptable by fitting the thing to be accounted for into some acceptable scheme (as logical or mathematical consistency, or an order of nature)" whereas *to explain* suggests "to clarify or make acceptable to the understanding something that it finds mysterious, causeless or inconsistent." Webster's Third, s.v. *explain*.

⁶ For the concept of "micro-time" as time so short that it is below the limits of perceivability, see Valin 1971, where it is used to characterize all the psychomechanisms involved in language.

grammar, be confronted with the widest possible range of attested usage before they can be considered "proved" (in the sense that any other hypothesis appears quite improbable), let alone "established" (cf. Hodge 1983:148). Notwithstanding such difficulties, this goal, which is inherent in any mentalist approach to language, in any claim to "psychological reality", is of crucial importance to linguistics simply because language is by nature a mental entity in large part. Indeed, any other approach must lead the linguist away from the reality of the object of his study.

Granted the importance of this aim of reconstructing the hidden entities of tongue, the method of achieving it takes on an equal significance and so deserves our attention for a moment. It consists of recognizing and taking full advantage of a widespread, not to say ubiquitous, characteristic of language, namely polysemy. The fact that theoretically all words and morphemes can express more than one meaning constitutes a stumbling block for many analysts, but for Guillaume it is a stepping stone in approaching the hidden nature of the entity in question. Like the numerous grammarians and linguists who seek the "underlying" or "basic" meaning of a given form, someone working within the framework of the Psychomechanics of Language questions the different meanings it can express to find out what lies behind them and makes them possible. However he questions these different senses from a very particular point of view: each sense attributable to a given form is viewed as the product of a thought process, the result of an immediately preceding mental operation, or act of representation. That is, the basic postulate of this approach is that every word or morpheme signifies a mental process and that all observable language usage (whether physically perceivable or mentally perceivable) is the result of prior, hidden operations of thought on the part of the speaker/writer.⁷ And so in the Psychomechanics of Language, when observing various uses of a given form one seeks any indication of a generative operation, any hint of how a particular sense was represented.

This method can best be grasped through particular cases where it has been applied with success. The indefinite article, for example, is commonly considered to express three different senses (cf. Seppänen 1984):

1. Generic, as in *A whale is a mammal*, where, out of the total class evoked by the substantive, any individual is an eligible candidate;
2. Non-specific, as in *She wants to marry a millionaire if she can find one*, where, out of a restricted group (available, unmarried, male, etc.) evoked by the substantive, any individual is an eligible candidate;
3. Specific, as in *She wants to marry a millionaire she met last year*, where, out of a set made up of one member, that one is an eligible candidate.

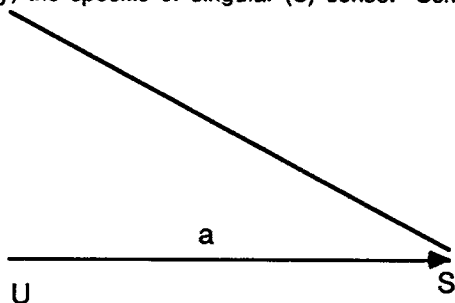
A comparison between these three senses shows that they have something in common - an expression of the extent of reference or extensity, i.e. of the size or scope of the set the speaker has in mind - and something distinguishing them. That is, in every case *a* expresses a size or quantity, but in each case the actual size is different: the greatest possible for the substantive in (1), the smallest possible for the substantive in (3) and some intermediate size in

⁷ This postulate determines how the observed facts of meaning are to be viewed, satisfying thereby the requirement felt by many scientists (cf. Holton 1978:215ff, Lyttleton 1977:12) of a hypothesis or principle to guide the observer in discerning what is pertinent in the plethora of individual facts.

(2). A formalizing approach might, of course, give appropriate symbols to the common meaning here and to each of the specific senses and thereby give a formal description of what the article expresses in each example but such a procedure would result in an explication of what has been observed rather than an explanation in the sense outlined above, i.e. based on an understanding of the nature of the article. In Psychomechanics, on the other hand, these three senses are viewed as the products of a single mental operation, that of representing the extent of reference or extensity (cf. Hirtle 1988b:463 for this term), an operation which can be symbolized by means of an oriented vector as follows:



After comparison with the other part of the system, expressed by the definite article (cf. Hewson 1972), the starting point of this operation can be postulated as corresponding to the greatest possible extensity, the generic or universal (U) sense, and the final limit as corresponding to the smallest possible extensity, the specific or singular (S) sense. Schematically:



It is this operation, or rather the possibility of carrying it out that constitutes the meaning potential of the indefinite article in English. Each of the three senses observed in discourse can then be seen as a necessary result if the speaker holds up this mental process at one of its three cardinal points, beginning, middle and end. Intercepted at its very start, this operation will give a representation of an extent of reference at its maximum, a generic or universal sense; intercepted at its final instant, it will give a representation of a minimum extensity, a specific or singular sense; suspended at any point in between, it will give a representation of an intermediate extensity, a non-specific or restricted-group sense.

Other examples of this method of analysis might be given. The system of number in the substantive has been analyzed on this basis (cf. Hirtle 1986), as has the system of *some* and *any* (cf. Hirtle 1988b). Even the two main meanings of the present perfect can now be seen to result from two distinct interceptions of a single movement through time. These and other results suggest that this method of seeking the act of representation giving rise to the observed facts of meaning has widespread applicability.

The advantages of theorizing the data in this way, as opposed to tacking symbols on the observed facts of meaning, are of considerable importance. First and foremost is that of postulating a theoretical construct as corresponding to something existing in the speaker's mind. This is not a

gratuitous or haphazard postulate suggested by a set of data but rather something that appears to be necessary since the general nature of what is postulated for the indefinite article or any other form, its operativity, arises from what most linguists would accept as an inescapable presupposition: that a person must think in order to speak. The specific nature of the theoretical construct, an operation representing extensity beginning at the universal and ending at the singular, comes from examining and reflecting upon the uses of the articles. This way of proceeding, which differs markedly from that of starting with a working hypothesis (cf. Guillaume 1984:22ff), keeps the linguist's attention focused on the hidden reality of his object, the nature of human language.

A second signal advantage of this type of analysis is that it provides a generative or "causally relevant" type of explanation. That is, the operation postulated appears to the analyst (who, of course, is open to error) to be a necessary prior condition of the facts observed in discourse. This permits synchronic or descriptive linguistics to take its place among the other theorizing sciences, which start with what is observable in their object and attempt to probe what lies beyond. It also reconstitutes linguistics as a single discipline wherein both the historical or diachronic and the descriptive or synchronic make use of essentially the same method of analysis, the one applying it to linguistic deep time, the other to linguistic micro-time, as Valin (1964) has so clearly shown.

Although such prospects are exciting, it remains that actual results in terms of reconstructed systems are not as yet plentiful so that those hidden workings of the mind which are of concern to the linguist remain, for the most part, obscure. But even a little knowledge is better than none, and what has been achieved so far suffices to show that we can acquire knowledge piecemeal without having to await an all-embracing theory of the human mind.

In conclusion, the view that the Psychomechanics of Language "is lacking in explanatory power" appears to be unfounded. In fact, if, as in other sciences based on observation, explanation is taken in its generative sense of seeking a prior condition that determines what is observed, this criticism can be leveled at other approaches which fail to focus on the mental reality lying behind the observed facts of language. The theoretical constructs of such approaches are in effect idealizations since they do not exist in the mind of the speaker, only in the mind of the analyst. And since they exclude an essential part of what they purport to elucidate, such constructs can have little explanatory power insofar as language as a phenomenon is concerned. And yet today so many such approaches are on the linguistic stage that one wonders why there is such reticence and even aversion to coming to grips with the mental reality of language. If the reason is the difficulty of analyzing what is hidden from view, one would think that Guillaume's method would be widely acclaimed, but this is far from the case.

Be that as it may, unless anyone wants to argue that no mental activity is required to produce a word, there remain only two paths open to the linguist who wishes to get beyond a mere description of the concrete. He may attempt the arduous task of fathoming the apparently inaccessible mental reality lying beneath the conscious reality of language or he may set out with Winnie-the-Pooh to capture imaginary heffalumps.

REFERENCES

- Dowty, David R. (1979) *Word Meaning and Montague Grammar*, Reidel, Dordrecht/Boston/London.
- Gould, Stephen Jay (1987) *Time's Arrow, Time's Cycle*, Harvard University Press, Cambridge/London.
- Guillaume, Gustave (1984) *Foundations for a Science of Language*, John Benjamins, Amsterdam/Philadelphia.
- Hewson, John (1972) *Article and Noun in English*, Mouton, The Hague/Paris.
- Hirtle, Walter (1986) "Grammar and Meaning: the Case of Number in English", *The Twelfth LACUS Forum 1985*, Linguistic Association of Canada and the United States, Lake Bluff, Illinois, pp. 21-37.
- _____ (1988a) "Events, Time and the Simple Form", *La Revue québécoise de linguistique*, 17, pp. 85-106.
- _____ (1988b) "Some and Any : Exploring the System", *Linguistics*, 26, 443-477.
- Hodge, Carleton (1983) "Afroasiatic: the Horizon and Beyond", *The Jewish Quarterly Review*, 74, pp. 137-158.
- Holton, Gerald (1978) *The Scientific Imagination: Case Studies*, Cambridge University Press, Cambridge.
- Lyttleton, R. A. (1977) "The Nature of Knowledge", R. Duncan and M. Weston-Smith (eds.) *The Encyclopaedia of Ignorance*, Pergamon Press, Oxford, pp. 10-17.
- Salmon, W.C. (1975) "Theoretical Explanation", S. Körner (ed.) *Explanation*, New Haven, Yale University Press, pp. 118-145.
- Seppänen, Aimo (1984) "The Generic Indefinite Article in English: a Re-examination", *Studia Linguistica* 38, pp. 99-116.
- Valin, Roch (1964) *La méthode comparative en linguistique historique et en psychomécanique du langage*, Presses de l'Université Laval, Québec.
- _____ (1971) "Introduction", Gustave Guillaume *Leçons de linguistique de Gustave Guillaume 1948-1949, Série A, Structure sémiologique et structure psychique de la langue française I*, Presses de l'Université Laval, Québec, pp. 9-58.

ON THE PRINCIPLED STUDY OF ARTIFICIAL LANGUAGES

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Artificial languages (ALs) have received relatively little serious attention from linguists, in particular from those working in generative grammar and related frameworks. This is not to say that there is a lack of material on ALs. However, many of these studies are rather biased attempts to demonstrate the superiority of one AL over others (or the general excellence of a particular AL), e.g. Clark (1912), and so could not be considered examples of true scholarship. Much of the more scientific work which has been done on ALs is of the socio-linguistic type, or deals with lexical matters, but there are few studies on such fields as the phonology or syntax of various ALs. In this paper we discuss issues involved in the serious study of ALs, after mentioning some of the benefits of examining ALs. We shall use the term artificial language here rather than universal language, auxiliary language, international language, etc.¹

First let us define our notion of artificial language. We consider an AL to be a language which has been consciously created in order to provide a means of communication among people on a large scale, one which may be simpler, easier to learn, or more logical than natural languages. ALs are therefore distinguished: (1) from pidgins, which arise out of the needs of an immediate situation (although they may grow in scope), and are not created consciously in the same sense as ALs; (2) from computer languages (e.g. FORTRAN), which are a means of communication between men and machines; (3) from codes, ciphers, and secret languages, which though also consciously created, differ from ALs in serving to make comprehension more difficult (not easier) for "unauthorized" people; (4) from imaginary languages (e.g. Klingon), which are made up as part of a work of fiction, and so do not have a communicative function; (5) from projects merely involving spelling reforms of natural languages (e.g. Anglic), which, although they are consciously created to facilitate communication and perhaps look considerably different from the original language, do not contain any substantive changes from it; and (6) from systems of shorthand.² It is not clear whether we should include in the class of ALs modifications of natural languages which do nothing more than simplify their vocabulary (e.g. Basic English); since these do not change the phonology, morphology, or syntax, they can not be seen as representing an entity significantly different from

the parent language (and might not be recognized as being any different from that language by a native speaker). We must point out that even in natural languages there are sometimes conscious innovations or changes, so that there is no fixed line between conscious and unconscious language creation.

There are two ways in which the study of ALs can enrich our linguistic knowledge. First, ALs can provide information on popular or "folk" ideas of language. Many or most language creators are not trained linguists (an exception being Jespersen, the author of Novial). We assume that ALs are constructed in order to provide an improved means of communication between people. Therefore it is in the interest of the language creator to make his language simple, and indeed a commonly used selling point of many ALs is the ease with which they may be learned and used. However, a feature which is meant to make an AL simple, reflecting a layman's beliefs on language, may in fact make it unlearnable or unspeakable.

For example, one of the difficult features of English for non-native speakers is the variable stress system; stress is phonemic, and it is debatable whether there is any reasonable system of rules which can predict where stress will fall. Many ALs, e.g. Esperanto, have fixed stress, which, one would imagine, makes learning easier. Another way of simplifying the stress system, indeed the ultimate simplification, would be to have no stress at all. This is the case in the Blue Language (Bolak). Of course a language without stress is impossible to pronounce, but the point is that the lack of stress in the Blue Language may be a reflection of a belief (perhaps not limited to the originator of this AL) that a language without stress would be easier than one with it (and that such a language could exist as a viable spoken medium).

Second, and more importantly, the study of ALs may yield important data about the nature of human language in general, perhaps particularly with regard to universals. If a principle or feature of language is indeed universal, it should hold even of those languages which have been consciously constructed (assuming that the creator is not attempting to be contrary). The strongest characteristics of the human language faculty may unconsciously affect the language creator's efforts as he builds a language. Features of ALs can be used as evidence for general properties of human language.

We shall give one example from phonology. Piggott and Singh (1984) claim that *lsl* is, or acts as, a sonorant, specifically a "sonorant fricative", based on evidence from Old French. This perhaps surprising assertion could receive support from the stress assignment rule of the AL Mondial. In this language stress falls on the penult of words ending in vowels or *lsl* and the ultima of words ending in other consonants.

This patterning of [sl with vowels might indicate that these sounds are all part of the same natural class. Unfortunately, the sonorant consonants [rl and [ll do not follow this pattern, and there may be other counterevidence; but this shows the kind of argument that can be drawn from ALs. The strongest evidence will come from a priori ALs, not a posteriori ones like Mondial, but both types may be of value.

Note the apparent contradiction here: on the one hand the language inventor, because of his ignorance of language, may create a language which is unspeakable, such as the Blue Language; on the other hand his language faculty should prevent him from breaking certain universals when he makes up his language. This contradiction can be resolved by positing different kinds of universals, applying at different levels. Thus, one can invent a language which violates a phonetic constraint on language dictated by the nature of the human vocal apparatus -- but such a language could never be spoken --, while a language violating some syntactic constraint, e.g. on anaphoric relations, could never even be thought up by the ordinary language creator, i.e. it would never even occur to him to set up his language in that way.

Let us consider the problem of the classification of ALs.³ The main division is between the a posteriori ALs, based on one or more natural languages, and those which are a priori, that is, not based on any existing natural language.⁴ We would propose classifying the a posteriori languages according to the natural languages on which they are based. Those languages derived from a single natural language would be listed under that language, while those which are based on two or more natural languages would be listed under the smallest group which contains all the source languages. Thus Tutonish, with elements from German and English, would be listed as general (West) Germanic, while Esperanto, which has borrowed from Romance, Germanic, and Slavic, would have to be considered general Indo-European. It may be useful to distinguish between those languages which are constructed, and those which are mere simplifications of natural languages.

The a priori languages are more difficult to classify. A typological classification may be the most useful system, with the major groupings being by word order of the subject, object, and verb; such a scheme may be useful if one is examining the general applicability of proposed universals, as described above. Another possibility is the classification of a priori languages by functional type, i.e. between those based on philosophical principles (e.g. the language of John Wilkins), which were created as a means of logically ordering the world, and those which were made to facilitate communication among people speaking different languages (e.g. Suma).

Upon detailed study of a priori languages it may well be found that, although their lexical items may be made up and therefore appear unfamiliar, their syntax is in fact based on a natural language, perhaps the mother tongue of the inventor. This would mean that there are no true a priori languages; all languages could be classified as a posteriori languages, or we could still maintain the a priori/a posteriori distinction and separate classification schemes, bearing in mind that the distinction is really between those languages which are consciously a posteriori and those which are not.

One of the main problems involved in research into ALs has to do with the lack of data. Of course, ALs (with the possible exception of Esperanto) have virtually no native speakers. So one can not rely on native speaker judgements. Esperanto, Ido, Volapük, and a few of the other more widely used ALs have a fairly large corpus of written works, but there is very little material in many ALs, other than examples and passages in pedagogical grammars. Indeed, some ALs have never left the stage of being rough sketches. This means that the study of ALs will have to rely to a large extent on prescriptive sources. We may not be able to tell what happens in actual usage of an AL, because it may not be (and may never have been) used by anyone. Further, we shall have to use pedagogical, rather than descriptive, grammars because few, if any, of the latter type have been written for ALs. Even finding out about the existence of ALs may be difficult enough; some AL projects have never been published, and accounts of others may appear only in little known sources.

For those languages which are used fairly widely, there is the question of how to decide which data are usable. If one goes to a meeting of the local Esperanto society, one may well encounter speakers who have a minimal grasp of the language. One has no choice but to use the data and grammaticality judgements of non-native speakers; the problem lies in determining which speakers are competent enough to be used as informants. If the organizers of an AL movement are lax in maintaining standards, there may be a lack of good speakers; indeed, even the inventor of an AL may deviate from rules which he has set.

However, the deviations from the prescribed rules of the language are also valuable data, for their source may lie in the fact that the AL as originally conceived is unspeakable. This again can provide information about the human language faculty: there may be some universals which the language inventor can break when he creates the language, but which can not be broken in actual use. The best sort of evidence would come from tests of whether children can acquire languages in the normal manner of first language acquisition, by hearing it spoken around them;⁵ but such evidence will be difficult to come by, given the extremely limited number of speakers of most

ALs, especially of a priori ALs, which are more valuable for this type of study. Nevertheless, we must still be able to decide which speakers have a high enough level of competence to be used as informants, since we must be able to determine which errors are due to imperfect knowledge of the language, and which are the result of violations of universals (i.e. which errors are in fact inevitable, no matter how competent the speaker).

Once the data have been gathered, the description and analysis of ALs should not differ from those for natural languages. Indeed, it is by analyzing them in the same way as natural languages that the particular features of ALs should be made evident, informing us about the qualities of human language. In this way the great amount of data represented by hundreds of artificial languages can be of service to modern linguistics.

NOTES

1. This term is used here because of its common occurrence, though some partisans of ALs dislike it. We do not find it derogatory. For an opposing view, v. Gold (1982), who discusses different names for this type of language.
2. All of these means of communication have points in common with ALs, and are worthy of study. The study of ALs may sometimes lead to examination of them also (v. e.g. the discussion of the rôle of cryptography and shorthand in the development of early ALs in Knowlson (1975: 18-21)). However, we shall limit our primary object of investigation to artificial languages, as defined here.
3. For more on the classification of ALs v. Monnerot-Dumaine (1960:36, 50-2).
4. This distinction was drawn by Louis Couturat and Léopold Leau and is described in several studies of ALs, e.g. Jacob (1947). In this system there was a third class, the mixed languages, with both a priori and a posteriori elements. We suggest eliminating this class, and either classifying all languages with any a posteriori elements as a posteriori languages; or perhaps better, since most ALs will have at least a few elements of both types, placing them in one or the other of the two classes depending on which type of element is dominant. However v. infra on the existence of true a priori ALs.
5. This line of thought is due to Myrna Gopnik.

REFERENCES

Clark, W.J. 1912. International Language. J.M. Dent & Sons Ltd., London.

Gold, David. 1982. "What Kind of Language is Esperanto?". Language Problems and Language Planning 6.3, 340-1.

Jacob, H. 1947. A Planned Auxiliary Language. Dennis Dobson Limited, London.

Knowlson, James. 1975. Universal language schemes in England and France 1600-1800. University of Toronto Press, Toronto.

Monnerot-Dumaine, M. 1960. Précis d'interlinguistique générale et spéciale. Librairie Maloine, Paris.

Piggott, G.L. and R. Singh. 1984. "The Empty Node in Phonology: An Analysis of Epenthesis". McGill Working Papers in Linguistics 1.2, 64-109.

TOWARDS SELF-ORGANIZATION OF SPREADING-ACTIVATION NETWORKS: DISTRIBUTED CONNECTIONIST MODELLING IN LINGUISTICS

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0. Introduction

The history of theoretical linguistics often seems to be inextricably tied up with the history of psychology -- transitions from one Kuhnian paradigm to another within the latter discipline have generally been followed by a similar transition within theoretical linguistics. Regardless of the actual reasons for this close association, linguists currently working within the cognitive paradigm will no doubt accept that linguistics must (become and) remain psychologically informed. The anticipation of major paradigm changes in psychology should therefore be of great interest to theoretical linguists. The purpose of this paper is threefold: (a) to provide documentation for the coming of a new scientific paradigm in psychology -- variously termed 'connectionist modelling', 'neural modelling' or 'computational neuropsychology'; (b) to argue for a set of boundary conditions imposed on psychologically-oriented linguistic theory by the connectionist paradigm and to critique current theoretical approaches to language in this new light; and (c) to report on research-in-progress involved with the connectionist modelling of language in a PC-based software simulation environment.

1. The General Case: Self-Organizing Synergetic Systems

The particular brand of connectionism which seems most useful for modelling language in terms of the general cognitive processes of perception, action, learning and inferencing can be considered a special case of so-called self-organizing synergetic systems (Haken (1983), Haken (1985)). These systems can be generally characterized as having a relatively large number of relatively simple -- often identical -- elements which interact with each other and with the system environment according to either deterministic or stochastic rules or functions. This interaction often gives rise to (sometimes very surprising) emergent properties (which Varela (1984) calls the system's "eigenbehavior"), which in some cases cannot be predicted from the behavior of a single element, nor by direct observation of the emergent properties themselves. Such emergent properties can only be determined by simulation of the low-level interactions through time -- this series cannot in all cases be re-

duced to a single equation or system of equations describing the emergent property in question. The interested reader is referred to Tomita (1979) for a more mathematical treatment of this kind of argumentation. Jaynes (1985) arrives at the conclusion that emergent properties CANNOT be completely predicted based on low-level synergetic interaction, but this seems only to apply to inferential prediction, not to simulation of isomorphic models.

The general properties of self-organizing synergetic systems can thus be summarized as follows:

- a set of elements
- the behavior of the (usually initially identical) elements, including rules or functions for their interaction with other elements and with the system environment
- emergent properties observed in the simulation

1.1. Examples of Applications and Results

1.1.1. Physical Systems

A typical application of self-organizing systems would be in modelling Brownian motion. In this case, the primitive elements would be atoms or molecules of a gas, for example; the behavior of these elements would essentially be their moving around according to conventional mechanics and bumping into each other or into elements of the system environment (the inside of a balloon, for instance). Emergent properties which can be explained using such a model include the temperature and pressure of the gas. Temperature relates to the kinetic energy inherent in the molecules in motion, and pressure relates to the energy transferred from (elements of) the system to its environment.

In physics, the relationship between the synergetic interaction of elements and the emergent properties of the system has been made an explicit object of research. It is, in fact, the *raison d'être* of the entire field of quantum theory; this study led more-or-less directly to the invention of the laser, for example, which is based on a rather surprising emergent property of certain kinds of crystals when you shine a bright light at them.

1.2.2. Biological Systems

In the case of such biological systems as living cells, the primitive elements may also be individual molecules, although the variety and three-dimensional structure of molecules play a tremendous role here which generally does not come into play in modelling Brownian motion. The behavior of these primitive ele-

ments includes moving around within the cell and between cells, attaching itself to other molecules (which may cause a change in its three-dimensional shape) and releasing molecules from this attachment. The emergent property arising from the synergetic interaction of all these elements would be the cell's metabolism or physiology (Weiss (1985)).

In cell physiology, the synergetic interactions of metabolically relevant molecules are studied in great detail, as are measurable features of the emergent properties (e.g. ion flows across membranes, photosynthesis); little work has been done, however, in linking the two levels in a single model. Such modelling is necessary, however, for understanding things like virus infection and cancer, where the study of emergent physiology simply does not help much in getting a handle on the mechanisms which lead to these states.

1.2.3. Social Systems

The most obvious example of synergetic systems from the social sciences is probably that of economic systems. Here, the primitive elements are people, or perhaps households or firms. The relevant behavior of these primitive elements involves making, selling and buying things and performing, selling and buying services. The emergent properties discernible in such a system include such aggregate phenomena as inflation and mass unemployment.

The status of explicit synergetic modelling is analogous here to that in biology: low-level interaction and emergent properties are studied separately, but generally not modelled -- or even talked about -- together.

1.2.4. Neuropsychological Systems

The kind of neuropsychological modelling discussed in this paper involves primitive elements which may be (but usually are not) interpreted as neurons, i.e. nerve cells as they are found in the brains or ganglions of most multicellular animals. To avoid committing oneself to an explicit neurobiological interpretation (and thus functional restriction) of these primitive units, they are usually referred to by connectionists as units. Networks of such units are intended to operate in the 'style of the brain' (Arbib, Conklin and Hill (1987), p. 31). Each unit has a unidirectional output to and a number of unidirectional inputs from other units. Each input connection generally has a 'weight' indicating the strength of the connection. The connections (also referred to as synapses in analogy to real biological neurons) are usually interpreted as transporting some real number from the output of one unit to the input of ano-

ther. Units also have a level of activation, generally represented as a number between zero and some arbitrary positive value. The behavior of a unit is to modify its state of activation based on its current state of activation and on its current inputs (whereby the weights are taken into consideration) and to determine an output level which is then transported via connections to other units. Some models also cause the weights of each unit's connections to be modified continuously based on the input level at that connection and the receiving unit's current level of activation. This kind of synaptic modification is supposed to approximate the current consensus in neuroscience concerning learning in biological neural nets.

The emergent properties observable in connectionist models, assuming that certain units are eventually connected to sensor and effector units as part of the system environment, include such cognitive processes as perception, action and (of course) learning.

There is now a growing community of neuroscientists and cognitive scientists who are building self-organizing synergetic systems for modelling cognition, and then examining the emergent properties/behavior of these systems in terms of cognitive processes. For excellent coverage of the current state of the art, see Rumelhart, McClelland et al. (1986), McClelland, Rumelhart et al. (1986) and Arbib (1987).

2. Spreading-Activation Networks (Connectionist Models)

2.1. General Properties

Connectionist models (neural networks, spreading-activation networks) must be considered at three different levels: unit, network and behavioral (the emergent level). Units have (a) states of activation and activation rules for continuously updating these states of activation based on previous activation, new input and usually a constant rate of decay; (b) output functions which produce an output level based on the current state of activation; and (c) a propagation rule which may be employed to define how much of the output signal arrives at the respective input synapse of a downstream unit. The network as a whole has (a) a set of units as described above; (b) a pattern of connectivity which determines which unit outputs are connected to which unit inputs -- typical patterns being universal, geometrical or random; and (c) a system environment which allows certain units to be used as input (or sensor) units and certain units to be used as output (effector) units. The third level of analysis in dealing with connectionist models, the behavioral or emergent level, has to do with describing the kinds of higher-level activity which may be observed in the model which has become explainable in terms of lower-level interac-

tions: processes of perception or pattern association, motor control, or schema-based cognition.

Certain connectionist models -- those that also qualify as self-organizing synergetic systems -- also have an additional factor at the unit level: (d) learning rules which describe how connection weights are continuously updated based on the previous connection weights, the current input and the current state of activation of the receiving unit.

Depending on whether or not a given researcher believes that nets must be allowed to learn from their input (as opposed to merely operating on it), the connectionist paradigm can be seen as split between two camps.

One camp has completely broken with tradition in both psychology and AI by developing self-organizing models (randomly or geometrically connected networks which learn through synaptic modification) of psychological phenomena, including language (Rumelhart, McClelland et al. (1986), McClelland, Rumelhart et al. (1986), Arbib (1987)).

The other camp is attempting to save what is seen as advantageous among the older symbol-processing approaches in cognitive science by hard-wiring knowledge representation schemes into the network (Anderson (1983)).

This difference may be exemplified in terms familiar to the linguist as follows: In the symbol-processing approach, individual units would represent individual phonemes, lexical items and semantic features. In the self-organizing approach, however, sets of units would be caused to map out their own representation of the acoustic input (for instance) to the network as an emergent property of the network architecture and of unit behavior (Kohonen (1988)).

There are good reasons, however, for preferring the self-organizing approach to connectionist modelling over the symbol-processing approach. The most obvious reason within the field of linguistics is simply the greater overlap with what is known from studies of aphasia: elements of the processual functioning of language behavior seem to be affected by lesions, but not generally the accessibility of specific symbols or groups of symbols. The self-organizing, neurologically informed version of connectionism seems to hold more promise for eventually making contact with explicit models of biological neurons, neural assemblies and cortical architecture.

3. Connectionism and Linguistic Theories

If the concept of "psychological reality" is to be accepted as

a boundary condition on linguistic theory, i.e. if the database to be covered by such theory is to extend to results from language-related experimental neuropsychology, then the starting point has to be a sensorimotor black box. The behaviorists modelled this black box by describing purely functional relationships between its inputs and outputs. Cognitive psychologists have generally modelled the black box by assuming stored Turing-power serial algorithms which read inputs, process them based on previously stored data and then generate outputs.

It is difficult to see how theories of syntax which treat a language as a set of sentences, and theories of semantics which treat meaning in terms of model theory, can be adequately mapped onto the kind of sensorimotor black box necessary for dealing with language as a cognitive phenomenon. Should such a mapping be possible, then it will be the task of those who find such formalisms useful. What is described by such formal means, however, is generally a theoretical construct referred to as 'competence' which seems most often to be circularly defined in terms of what the formalism can describe. For this reason, the exigencies of such formal descriptive means cannot be elevated to the status of boundary conditions on processual models of linguistic performance. The concept of linguistic competence seems reminiscent of dualist positions which indirectly imply the existence of a homunculus that does the thinking in someone's head, while the person him/herself performs the actions directed by that homunculus. The self-organizing connectionist paradigm is inherently monist (but see Eccles (1985) for a diametrically opposing view) and makes no distinction -- whether for language or for other areas of cognition or behavior -- between performance and competence, there is only demonstrable cognition or behavior, which one might or might not want to equate with performance in the now traditional linguistic sense.

4. Stratificational Networks and their Acquisition

The above discussion is not intended to imply, however, that linguistic formalisms, designed to capture regularities discerned in the patterning of low-level interactions among connectionist units, may be of no value. Much the contrary is in fact the case. Only if linguistic generalizations can be stated at a level accessible to introspection will it be possible to derive any good from these generalizations -- whether for the purpose of understanding language processing in the first place or applying this knowledge to, say, the facilitation of L2 acquisition.

The linguistic formalism found to be most compatible with the boundary conditions imposed by the connectionist paradigm is that of cognitive-stratificational linguistics (see Lamb

(1966), Reich (1970), Lockwood (1972)). The possible use of the stratificational model in better understanding the emergent properties of self-organizing connectionist networks will now be examined first from the point of view of stratificational linguistics itself, and then from the point of view of connectionist modelling.

Assuming a spreading-activation interpretation of stratificational networks, it is mainly necessary to incorporate an element of learning into the model in order to obtain a connectionist model of the self-organizing sort. Looking at stratificational networks in their own terms, it is difficult to imagine what a mechanism for LEARNING would look like. There seem to be two distinct possibilities: (a) the invocation of an overlying METASYSTEM which modifies the stratificational network based on learning -- this would probably be an algorithmic approach within the information-processing paradigm; (b) design the nodes of the network such that the network is self-modifying; here, too, it is very difficult to discern any obvious mechanism for causing one node to spawn new nodes or connections.

On the other hand, a self-organizing, distributed connectionist model can be seen as IMPLEMENTING a stratificational network, or the stratificational network can be seen as an emergent property of the connectionist network underlying it. On this view, it finally becomes possible for stratificational networks to be modified: not from above or from within, but from below. All connections at the emergent level are in principle possible, but just those connections which IN THEIR ENTIRETY most nearly match the biography of the network will in fact receive greater connective strengths.

5. Simulating Self-Organizing Stratificational Networks: Results and Outlook

5.1. Software Simulation Environment

This final section provides a brief report on the author's research-in-progress dealing with the construction of such self-organizing stratificational networks as described above, in the form of a computer simulation environment, which are able to learn the connections necessary to model the behavior presented to the system as input -- i.e. which 'learn' a stratificational network.

The main thing that is necessary for doing connectionist modelling of any kind is a software system for easily simulating flexible connectionist models on a computer, most preferably on a microcomputer or workstation with a user-friendly graphics interface for viewing network topologies at the self-organizing and at the emergent level. We are currently involved in design-

ing and prototyping such a software simulation environment for use on a number of popular microcomputers and workstations. The user interface of this software is designed to allow linguists to experiment with self-organizing networks at several levels:

- network topology
- unit behavior
- environmental interface
- emergent nodes or nexions
- definition of emergent constructs
- dynamic tracking of changes at the emergent level

The simulation of large, massively parallel networks on a conventional von Neumann computer is certainly not the best solution imaginable. It may prove possible to interface an interactive workstation-based front-end to a vector-based supercomputer back-end for performing the actual simulation or even to dedicated parallel hardware such as the Connection Machine (Hillis (1983)).

5.2. Promising Areas of Application

Any systematic overview of the possible applications of self-organizing connectionist modelling in linguistic theory and description would have to go far beyond the space available in the present context. In what follows, only a few references are made to approaches in linguistics or psycholinguistics which are felt to be at least marginally compatible with the kind of modelling advocated here.

The most obvious area of application is undoubtedly that of language acquisition (L1 and Lx). It is impossible to model language in the self-organizing framework without modelling language acquisition simultaneously. This fact should therefore place severe restrictions on the kinds of model which are compatible with the database to be accounted for -- such facts as regeneration of suppletive forms will have to occur as emergent properties of lower-level interactions.

The other natural area of application relates to the integration of pragmatics into the rest of language behavior and cognition. Examples of approaches which seem to be converging with the kind of modelling advocated here are Arbib, Conklin and Hill (1987) and Rumelhart et al. (1986) (dealing with prototype-based non-compositional semantics); Hirst (1981) (on anaphora resolution); Engelkamp and Zimmer (1983) and Batori (1981) (on sentence topic and focus phenomena).

Other examples of converging applications in linguistics and related disciplines involve the simulation of degraded perfor-

mance. These include Dell and Reich (1980) (on slips of the tongue) and Arbib, Conklin and Hill (1987) (on lesionable performance models).

6. Conclusion

It has been the intention in this paper to make linguists aware of a group of well-meaning cognitive scientists who badly need insights from linguists who wish to think in terms of self-organizing spreading-activation networks.

The main intention behind this paper has been to raise the awareness of linguists with respect to a possible convergence from cognitive science which has, in our view, a tremendous integrative potential for both linguistics and cognitive science -- to the extent that theoretical linguistics and cognitive science may at some point in the future be seen to coalesce. It will be to the advantage of all linguists to be aware of this convergence, lest our discipline once again get into a provincial rut without any possibility of fruitful interaction with related fields. This will require the acceptance in linguistics of a much wider database to be accounted for by linguistic theory than most linguists seem to be prepared to deal with.

REFERENCES

- Anderson, John R. (1983) *The Architecture of Cognition*. Cambridge, MA: Harvard University Press.
- Arbib, Michael A. (1987) *Brains, Machines and Mathematics*. 2nd edition. Heidelberg: Springer-Verlag.
- Arbib, Michael A., Conklin, E. Jeffrey and Hill, Jane C. (1987) *From Schema Theory to Language*. Oxford: Oxford University Press.
- Batori, Istvan S. (1981) *Die Grammatik aus der Sicht kognitiver Prozesse*. Tuebingen: Gunter Narr Verlag.
- Dell, Gary S. and Reich, Peter A. (1980) "Slips of the tongue: The facts and a stratificational model", in Copeland, James E. and Davis, Philip W. (eds.) *Papers in Cognitive-Stratificational Linguistics*, pp. 19-34. Rice University Studies 66(2).
- Eccles, J.C. (1985) "New light on the mind-brain problem: How mental events could influence neural events", in Haken, H.

(ed.), pp. 81-106.

Engelkamp, J. and Zimmer, H.D. (1983) *Dynamic Aspects of Language Processing: Focus and Presupposition*. Heidelberg: Springer-Verlag.

Haken, H. (1983) *Advanced Synergetics: Instability Hierarchies of Self-Organizing Systems and Devices*. Heidelberg: Springer-Verlag.

Haken, H. (ed.) (1985a) *Complex Systems -- Operational Approaches in Neurobiology, Physics, and Computers*. Heidelberg: Springer-Verlag.

Haken, H. (1985b) "Operational approaches to complex systems: An introduction", in Haken, H. (ed.), pp. 1-13.

Hillis, W.D. (1983) "The Connection Machine: A computer architecture based on cellular automata", in Farmer, Doyne, Toffoli, Tommaso and Wolfram, Stephen (eds.) *Cellular Automata*, pp. 213-228.

Hirst, Graeme (1981) *Anaphora in Natural Language Understanding: A Survey*. Lecture Notes in Computer Science 119. Heidelberg: Springer-Verlag.

Jaynes, E.T. (1985) "Macroscopic prediction", in Haken, H. (ed.), pp. 254-269.

Kohonen, Teuvo (1988) *Self-Organization and Associative Memory*. Heidelberg: Springer-Verlag.

Lamb, Sydney M. (1966) *Outline of Stratificational Grammar*. Washington, D.C.: Georgetown University Press.

Lockwood, David G. (1972) *Introduction to Stratificational Linguistics*. New York: Harcourt Brace Jovanovich.

McClelland, James L., Rumelhart, David E. et al. (eds.) (1986) *Parallel Distributed Processing: Explorations in the Microstructure of Cognition. Volume 2: Psychological and Biological Models*. Cambridge, MA: MIT Press.

Reich, Peter A. (1970) *A Relational Network Model of Language Behavior*. Unpubl. diss., Univ. Michigan.

Rumelhart, David E. et al. (1986) "Schemata and sequential thought processes in PDP models", in McClelland, Rumelhart et al. (eds.), pp. 7-57.

Rumelhart, David E., McClelland, James L. et al. (eds.) (1986) *Parallel Distributed Processing: Explorations in the Micro-*

structures of Cognition. Volume 1: Foundations. Cambridge, MA: MIT Press.

Tomita, K. (1979) "Chaos and its description", in Haken, H. (ed.) Pattern Formation by Dynamic Systems and Pattern Recognition, pp. 90-97. Heidelberg: Springer-Verlag.

Varela, F. (1984) "Two principles for self-organization", in Ulrich, H. and Probst, G.J.B. (eds.) Self-Organization and Management of Social Systems: Insights, Promises, Doubts, and Questions. Heidelberg: Springer-Verlag.

Weiss, D.G. (1985) "Dynamics and cooperativity in the organization of cytoplasmic structures and flows", Haken, H. (ed.), pp. 179-191.

III

PHONOLOGY

THE TONE RELATION BETWEEN MANDARIN CHINESE AND SHANDONG DIALECT

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Under the general banner of "Chinese" are subsumed at least seven language or dialect groups. (As is well known in linguistics, it is not always clear at what point the term "language" should cease to be used, and the term "dialect" should take its place, since the terms are essentially social and political ones.) Among these dialect groups, the Northern dialect group is by far the most important Chinese variety, spoken by more than 70% of the whole population. Mandarin Chinese took its shape and was developed on the basis of these northern dialects in terms of its grammar, lexis, and pronunciation, because of the long history of political and cultural dominance by the north; as for the pronunciation, it is largely based on that of the dialect of Beijing, the capital of the country. What we* mean by Mandarin Chinese here is Putonghua, the modern standard Chinese used in public education and mass media in the People's Republic of China, or Guoyu, the national language, as it is called and is in similarly wide use in Taiwan. We want to make this clear because the word "Mandarin" is often misunderstood. Historically the word "Mandarin" means Chinese Guanhua, the language of the officials, which is a general term for most of the northern dialects, including Shandong dialect, which we will discuss below. But since the English word "Mandarin" has already long been accepted in the meaning of modern standard Chinese, we will use it in this meaning here. Shandong dialect is one of the major northern dialects; as mentioned above, it is from these northern dialects that Mandarin has actually grown. Shandong denotes the whole dialect group spoken in Shandong Province (see the map on the following page). The data discussed here come from a specific sub-dialect spoken in the central area of the province. Because of the close historical relationship between Mandarin and Shandong dialect (and the same would be true for other northern dialects), they are very similar; people who speak one of them can understand or even learn to speak the other very quickly and without much difficulty. But what is this similarity, or rather difference? A simple answer would be that the main difference lies in their pronunciation. There are also lexical and idiomatic differences, as between British and American English, but these are minor compared to their phonetic and phonological differences, since the grammar and the basic vocabulary are almost the same in both dialects. But then what is this phonetic and phonological

* Throughout this paper, "we" refers to both authors together, whereas "I" refers to the senior author alone.



difference?

This question has perplexed me for a long time. The reason I chose these two particular dialects is because I can speak them both. When I was a boy, I lived with my grandparents, who were from Shandon, for quite a long time. Naturally, I learned to speak their dialect (as mentioned above, a sub-dialect from the central area of the province). Elsewhere, I spoke Mandarin and Shanghai dialect. One thing that interested me was that when I learned Shandon dialect, I could then render those Mandarin words which I had never before heard spoken in Shandon dialect into the way that I thought they should be pronounced in Shandon dialect, and it turned out that at least nine times out of ten I was correct -- they were in fact pronounced that way. There must then have been some regular rules, which I must have learned subconsciously for this switch between the two dialects. In British and American English, for example, there is an obvious difference in the pronunciation of /r/. In BBC English the sound is described as a frictionless continuant, whereas in American English it is a retroflex. This rhotic feature is then one of the very important criteria to tell one accent from the other. But what are the most important phonetic and phonological clues that we can use to distinguish Shandon dialect from Mandarin?

At first sight, there does not seem to be anything as evident and revealing as the rhotic/non-rhotic distinction between American and British English. Initially, I chose randomly a number of frequently used characters in modern Chinese and transcribed their pronunciations in Mandarin and in Shandon dialect. For the same Chinese character, its phonemic transcriptions are basically the same in Mandarin and in Shandon dialect:

e.g. Chinese characters	Mandarin	Shandong dialect
八 (eight)	/ba/	/ba/
搬 (carry)	/ban/	/ban/
包 (bag)	/baa/	/baa/
打 (beat)	/da/	/da/
骂 (scold)	/ma/	/ma/
难 (difficult)	/nan/	/nan/

[Note on the transcriptions: b and d are unaspirated, voiceless]

As can be seen from these examples (of course one could give many more), it is evident that the difference between the pronunciations of the two dialects cannot be perceived on a segmental basis. There are numerous studies that have been done comparing the different sound patterns of different Chinese dialects, both within the northern dialect group as well as between Mandarin and other dialects. There are also many papers written on detailed tone analysis of specific dialects, their phoneme inventories, consonant differences and vowel changes, etc. But there are comparatively very few reports on the tone relationship between different dialects, and in fact most of them deal with the differences in tone values between the compared dialects -- for example, Song's 1959 paper (in Chinese) on the tonal relationship between Mandarin and dialects in the Liaoning area (northeast China) is of such a kind. It was when I worked on the tone analysis and contrast of Mandarin and Shandong dialect that I began to see the light -- that the difference is in the tone patterns, rather than in the tone values or segmental phonemes.

As is well known, Chinese is a contour tone language. When a Chinese character is read aloud, the syllable produced consists not only of the consonant and vowel but also a tone. Many regard tone as a suprasegmental phenomenon, but it may be more appropriate to regard it as something autosegmental. This view is far from a novel idea, but is in fact a return to the earliest ideas about tone. Traditional Chinese scholars consider the tone to be a property of the rhyme (i.e., the syllable minus its initial consonants); this notion makes its appearance quite clearly in the *Fanqie* (反切, meaning literally "reverse splitting") spelling system, in which a character was "spelled out" by giving two other characters, the first of which shared the same initial consonant and the second of which shared the same final. The tone of the second character was always the same as that of the target character, showing clearly that it was perceived as a property of the rhyme, and never of the initial consonant or even of the syllable as a whole. This tone, which is used in reading aloud a character in isolation, is called the Naming Tone, since it is the tone by which that character is known. It is used when the character is uttered by itself, and in conjunction with other characters in most cases, though there is the so-called tone sandhi (the influence of one tone on adjacent ones); we regard this as the

weak, or reduced, form of the naming tone in fast and fluent speech, and omit it from our present discussion. We have concentrated in this paper on the study of monosyllables rather than including tone sandhi simply because an analysis including tone sandhi would do little to reveal the essence of the Chinese sound system, and would require a prior account of the internal syllable structure. A complete analysis would of course also have to account for the tone sandhi phenomena as well.

Now let us have a brief look at the four tones in Chinese. If we divide the pitch of an individual's voice range into (1) low, (2) half-low, (3) middle, (4) half-high, and (5) high, the four tones that are required for describing Mandarin Chinese can be shown in the following table, which contains an oft-cited example:

Tone contrasts in Mandarin Chinese

Tone number	Description	Pitch	Tone mark	Example	Gloss
1	high level	55	-	/mā/	mother
2	high rising	35	'	/má/	hemp
3	low falling rising	214	ˇ	/mǎ/	horse
4	high falling	51	`	/mà/	scold

In Shandong dialect there are also four tones which have the same tone values (i.e., pitch range) as those of Mandarin Chinese. But Shandong dialect has its own tone pattern, in that the tones are distributed differently. For example, /mā/ (mother), /má/ (hemp), /mǎ/ (horse), and /mà/ (scold) in Mandarin are /mǎ/ (mother), /mā/ (hemp), /má/ (horse), and /mà/ (scold) respectively in Shandong dialect. We can see this more clearly by means of the following comparative table:

Mandarin		Shandong dialect		Tone "change"	Gloss
Tone number	Example	Tone number	Example		
1	/mā/	3	/mǎ/	1 → 3	mother 妈
2	/má/	1	/mā/	2 → 1	hemp 麻
3	/mǎ/	2	/má/	3 → 2	horse 马
4	/mà/	4	/mà/	4 → 4	scold 骂

From this it is clear that the difference between the two dialects is largely due to their tone differences. In the above example, we can see that tones 1, 2, 3, and 4 in Mandarin Chinese correspond to tones 3, 1, 2, and 4 respectively in central Shandong dialect.

In fact, a systematic investigation of all 1026 possible syllables revealed that there are virtually no segmental differences between Mandarin and Shandong; there were only 10 segmental differences in the 1026 syllables, and all 10 involved vowels. With respect to the tone correspondence rule, there were only 6 exceptions in the 1026 possible syllables. We have no explanation at this point for these 6 exceptions. [The complete data, with

the few exceptions clearly marked, is available from the authors on request.]

As mentioned above, the data discussed above come from a specific sub-dialect of Shandong. In comparing our result above with data from a native speaker of another sub-dialect of Shandong, that of Jinan (the capital city of the province), we found that the basic principle of regular tone correspondence is still valid, but that the rule requires adjustment. For the Jinan sub-dialect, the rule is that tones 1, 2, 3, and 4 in Mandarin correspond to 3, 4, 2, and 4 respectively in Jinan. For both sub-dialects of Shandong examined here then, the tone correspondences with Mandarin are so strikingly regular that it surprises us that the regularity has not been remarked upon before in the literature. The question of whether other northern dialects show such regular tone correspondences with Mandarin Chinese remains for further research.

REFERENCE

- Song, Xue. 1959. "The Tonal Relation Between Mandarin and Liaoning Dialects", pages 14 - 17 in Collected Papers on Mandarin and Dialects. Beijing: Chinese Scripts Reform Publishing House. [in Chinese; no editor listed.]

CONSONANT-VOICING-DEPENDENT VOWEL DURATION IN ENGLISH AND FRENCH REEXAMINED

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1. INTRODUCTION

Using three English and three French monolingual speakers, as well as three French-dominant bilinguals, Mack (1982) set out to determine the durational differences between vowels preceding tautosyllabic voiceless vs. voiced consonants in English and French. The goal of the study was to determine whether the differences were indeed as much greater in English, than in other languages including French, as previous research (e.g., Zimmerman and Sapon 1958, Chen 1970) had suggested.

Her results revealed large differences in the use of voicing-dependent vowel duration between English and French monolinguals. The durational ratios of vowels preceding voiceless over voiced consonants were lower in English, since vowels in a voiced context were considerably longer in English than in French. The bilinguals' ratios were quite similar in French and English. Their average ratios were comparable to those of the French monolinguals and unlike the English monolinguals' ratios. Furthermore, their vowel duration in French was fairly identical to that of the French monolinguals and their vowel duration was generally longer in English than in French. In other words, the bilinguals performed essentially like the French monolinguals, without using the English voicing-dependent vowel duration rule, and interpreted the difference between the two languages as being one of absolute vowel length which they attempted to maintain by lengthening all English vowels. Mack concluded that consonant voicing is a universally important factor influencing the duration of preceding vowels and that English exploits this natural process by using it as the basis for a language-specific phonetic rule of vowel lengthening.

Mack's study raises several questions. First, she used monosyllabic words in isolation, which is the context in which the two languages have a phonetic rule of final lengthening. In utterance-final position tested by Mack, this independent rule may have caused the finding of the larger vowel-length differences in English and the smaller differences in French.² Second, it is surprising that Mack limited her study to words ending in stops, in view of the fact that French itself is regularly described as having a vowel lengthening rule in contexts preceding voiced fricatives and /r/, as in phase and phare vs. face. Third, in view of the differences Mack found between French and English and the behavior of French-dominant bilinguals, it would be interesting to know how English-dominant bilinguals handle the data.

It was therefore decided to extend Mack's study using monosyllabic words containing final fricatives as well as stops in phrase-medial context to rule out any effects of final lengthening; and to include English-dominant bilinguals among the subjects.

It was hypothesized (1) that if the important vowel duration differences associated with following consonant-voicing contrasts in English are "part of a native speaker's phonetic rule system to the extent that these differences are not an inevitable consequence of articulatory maneuvers" (Mack 1982:173), they should extend to phrase-medial position under nuclear prominence (i.e., focus or sentence-accent), and to fricatives, as well as stops; and (2) that phrase-medially, where final lengthening is inoperative, the differences in the use of voicing-dependent vowel duration by the French vs. English monolinguals would be much smaller than the ones reported in Mack, so that both languages could in fact have a vowel lengthening rule.

2. METHODS

2.1. Subjects

Twelve subjects were used: three English and three French monolingual speakers, as well as three French-dominant and three English-dominant French-English bilinguals. The monolinguals had either no foreign language experience or had had very limited training a number of years ago, of which they claimed to remember at best a few words and expressions. The bilinguals, all graduate students at OSU, can be qualified as advanced bilinguals, since their experience of the foreign language varied between seven and eleven years of formal training, plus from two weeks to 18 months' residence in France for the English, and three to eight years in the U.S. for the French speakers. The English speakers had all been born and were residing in Ohio, and they all pronounced the vowels in caught the same way as in cawed. The French speakers all came from cities in Northern France (Orléans, Nantes, Paris, Strasbourg-non Alsatian/German speaking) and their speech was free enough of local linguistic features to be qualified as Standard French. In particular, they all had the same monophthong in code as in cotte, and the same in sauf as in sauve. The monolinguals were all over 30 years old, and the bilinguals between 25 and 35.

2.2. Test materials

Two sets of two minimal pairs of monosyllabic words which are nearly homophonous in English and French were used: one set with final stops and one with final fricatives, as illustrated in (1). The words were inserted in a frame sentence, in which they occurred medially under focus, as in answer to the question: What shall I yell at Mary?/Que dois-je dire à Marie? A packet of materials was prepared for each language which contained (in a random order) five tokens of each of the test words in the frame

sentence. An instruction to read the sentences at a normal rate of speech and as naturally as possible, was given at the top of each packet in the appropriate language.

- | | | |
|-----------|---------------------|--------------------|
| (1) | <u>English</u> | <u>French</u> |
| a) words: | 1. bus/buzz | 1. bus/buse |
| | 2. caught/cawed | 2. cotte/code |
| | 3. peck/peg | 3. bec/bèque |
| | 4. safe/save | 4. sauf/sauve |
| b) frame: | Yell _____ at Mary. | Dis _____ à Marie. |

2.3. Recordings

Except for the French monolinguals, the speech materials were recorded in a sound treated room on a professional-quality cassette tape recorder. The French monolinguals were recorded on a portable cassette tape recorder using a good quality directional microphone in the quietest room in their office building or home. There was a noticeable difference in the rate of articulation between the latter group and the former groups, presumably due to the recording environment.

2.4. Analysis

All sentences were digitized with a sampling frequency of 10KHz and an A/D resolution of 12 bits on the DT2801-A data acquisition board. A waveform editor was used to analyze these visual and auditory displays from which the durational measurements were taken. Except for the French monolinguals' data, the release burst and any aspiration following voiceless stops were included in the measurement of the duration of the following vowel. Although there are significant VOT differences in French and English, these do not affect the results when absolute differences in durations, rather than their ratios, are compared across the two languages.

Following voiced stops and fricatives, the vowel onset was determined visually by the usually quite apparent change in the waveform amplitude and verified auditorily to ensure that the visually delimited portion corresponded exclusively to the vowel without any audible traces of the surrounding consonants. Abutting formant transitions showing the results of coarticulation between the vowel and the surrounding consonants were thus not included in the measurement of the duration of the vowel.²

Preceding voiceless stops, the decrease or cessation of periodicity on the visual waveform displays was used as a demarcation point, supplemented by auditory verification. Preceding voiced stops and fricatives, the vowel offset was determined by a decrease in amplitude and/or a decrease in waveform complexity, and its exact location again checked auditorily.

3. RESULTS

3.1. Monolingual data.

The durational analysis revealed much smaller differences in the use of consonant-voicing-dependent vowel duration by English and French monolinguals than those found by Mack.³ As Table I, where Mack's results are given in parentheses, shows, utterance-finally, the total difference in the durational percentages were 18.7% (67.0-48.3) higher in English, whereas medially they are 9.3% (78.8-69.5) higher in French. The 9.3% (sentence-medial) difference is statistically significant at the 5% level. However, this difference in the ratios is probably due to differences in tempo and VOT measurement between the French and the English speakers.

Table I. Vowel Durations (in msec.) and Duration Percentages Across Minimal Pairs for Monolingual Speakers.

		Monolinguals			
		English		French	
	Duration	%		Duration	%
1. <u>bns</u>	122.9*	70.5	<u>bns</u>	94.3*	68.0
	<u>buzz</u> 174.4			<u>buse</u> 138.8	
2. <u>caught</u>	245.3* (157.7)	85.7 (50.5)	<u>cotte</u>	84.6* (130.5)	72.7 (77.9)
	<u>caved</u> 286.4 (312.2)			<u>code</u> 116.4 (167.5)	
3. <u>peck</u>	156.2* (85.3)	79.1 (46.1)	<u>bec</u>	91.7* (108.4)	77.9 (56.1)
	<u>peg</u> 197.4 (185.0)			<u>béque</u> 117.6 (193.1)	
4. <u>safe</u>	157.6*	76.7	<u>sauif</u>	79.8*	65.0
	<u>save</u> 205.4			<u>sauve</u> 122.8	
$\bar{X}$	170.0* (121.5)	78.8 (48.3)	$\bar{X}$	86.7* (119.5)	69.5 (67.0)
	215.8 (248.6)			124.8 (180.3)	

Numbers in parentheses are Mack's (1982) results.

A (*) between two mean durations indicates that the difference between them is significant at the .01 level.

Table II compares absolute vowel duration differences and duration percentages for all four pairs of words between the English and French monolinguals. As the table shows, the two groups are statistically indistinguishable in terms of the absolute difference (given in msec.) between the duration of

vowels preceding voiceless, as opposed to voiced obstruents. The difference in English amounts to 45.8 msec. and in French to 38.1, and the difference between the ranges in the two languages amounts to a mere 7.7 msec. which is not statistically significant, and sharply contrasts with the 83.3 difference in favor of English found by Mack in utterance-final position between the English and French monolinguals' average durational range. Thus, although medially the ratios are different between the English and French monolinguals, this is simply due to tempo and VOT measurement differences, since the differences in vowel duration before voiced minus voiceless consonants are roughly the same between these two groups of speakers. A comparison of the overall results in Table II with each minimal pair considered separately confirms the general findings. The vowel duration differences are greater for each pair in English than in French, but the differences between the two languages amount to a nonsignificant 7.0 msec. for pairs #1, 9.3 for pairs #2, 15.3 for pairs #3, and 4.8 for pairs #4.⁴

Table II. Comparison of English and French Subjects' Absolute Vowel Durations (in msec.) in Voiceless and Voiced Contexts and Duration Percentages for All Word Pairs.

	<u>V-ed</u>	<u>V-less</u>	<u>V-ed - V-less</u>	<u>V-ed / V-less (%)</u>
English	215.8	170.0	45.8	78.8
French	<u>124.8</u>	<u>86.7</u>	<u>38.1</u>	<u>69.5</u>
Eng. - Fre.	91.0**	83.3**	7.7	9.3*
	(10.6)	(25.9)	(0.24)	(2.60)

The t-statistics for the Eng.-Fre. differences are given in parentheses. Also, the .05 level of significance is shown by * and the .01 level by **.

Furthermore, as Table III shows, there is no significant difference in either language between the absolute durations of vowels in words ending in fricatives (1&4) and words ending in stops (2&3), the difference amounting to 5.8 msec. in English, and 16.9 in French in favor of fricatives.⁵ In other words, French and English do not appear to differ in vowel lengthening. The conclusion reached by Mack that English has an actively programmed rule of vowel lengthening that French does not have is not borne out by the data in sentence-medial position examined here.

It is interesting to compare the results of this study with respect to stops with the ones reported in Flege 1981 comparing the production of the English word pairs (tap/tab), bat/bad and back/bag to the production of the Arabic pairs (saab), qaat/qaad, saak/saaq, in a similar context, namely in the English frame

'I say ____ again to Bob' and Arabic [ʔagra ____ wamsilelbeyt] 'I read ____ and then I go home'. Flege found a mean vowel duration contrast of about 33 msec. for English monolinguals, as opposed to about 7.0 for the two Arabic pairs (differences read from this bar graph in Fig. 5), that is, roughly a four to one or 21% difference

Table III. Comparison of Vowel Duration (in msec.) and Duration Percentages for Words Ending in Fricatives (1&4) vs. Words Ending in Stops (2&3).

English Monolinguals				
	<u>V-ed</u>	<u>V-less</u>	<u>V-ed - V-less</u>	<u>V-ed / V-less (%)</u>
1&4 (fric.)	189.0	140.5	48.5** (6.89)	74.4
2&3 (stops)	<u>243.5</u>	<u>208.8</u>	<u>42.7**</u> (9.22)	82.5
1&4 - 2&3	-54.5	-60.3	5.8 (0.45)	

French Monolinguals				
	<u>V-ed</u>	<u>V-less</u>	<u>V-ed - V-less</u>	<u>V-ed / V-less (%)</u>
1&4 (fric.)	131.4	84.5	46.9** (6.59)	64.3
2&3 (stops)	<u>118.1</u>	<u>88.1</u>	<u>30.0*</u> (2.99)	74.7
1&4 - 2&3	13.3	-3.6	16.9 (1.10)	

The t-statistics for the (V-ed - V-less) differences are given in parentheses. Also, the .05 level of significance is shown by * and the .01 level by **.

which is substantially greater than the 70% difference between French and English noted here. The results of Flege's and this study with respect to mean duration contrasts are given in (2a). It is clear that it is Arabic which is substantially different from the other two languages. The values for fricatives in French and English are given in (2b). They strengthen the results obtained for stops in the two languages.

(2) Mean Vowel Duration Differences (in msec.):

a) <u>before stops:</u>	<u>English</u>	<u>French</u>	<u>Arabic</u>	<u>Ar. or Fre./Eng.</u>
Flege (1981)	33.0		7.0	21%
This study	41.1	28.9		70%
b) <u>before fricatives:</u>	49.6	43.7		88%

Thus, it appears from the phrase-medial data that both English and French, but not Arabic, use the universal natural tendency for vowels to be somewhat longer before voiced, as opposed to voiceless consonants, as the basis for a language-specific phonetic implementation rule applying both in the context of stops and of fricatives.

Table IV. Vowel Durations (in msec.) and Duration Percentages Across Minimal Pairs for Bilingual Speakers.

<u>English-Dominant Bilinguals</u>							
<u>English</u>				<u>French</u>			
	<u>Duration</u>	<u>%</u>			<u>Duration</u>	<u>%</u>	
1. <u>bus</u>	109.1*	64.1		<u>bus</u>	140.5 **	62.3	
<u>buzz</u>	170.3			<u>buse</u>	225.5		
2. <u>caught</u>	220.2*	85.0		<u>cotte</u>	190.7*	74.9	
<u>caved</u>	259.1			<u>code</u>	254.5		
3. <u>peck</u>	154.3*	77.4		<u>bec</u>	124.5*	62.9	
<u>peg</u>	199.2			<u>bègue</u>	197.9		
4. <u>safe</u>	131.6*	71.6		<u>sauf</u>	128.5*	61.3	
<u>save</u>	183.9			<u>sauve</u>	209.5		
<u>X</u>	155.1*	76.4		<u>X</u>	142.2*	64.1	
	203.1				221.9		
<u>French-Dominant Bilinguals</u>							
<u>English</u>				<u>French</u>			
	<u>Duration</u>	<u>%</u>			<u>Duration</u>	<u>%</u>	
1. <u>bus</u>	142.1*	75.4		<u>bus</u>	119.9*	70.2	
<u>buzz</u>	188.5			<u>buse</u>	170.8		
2. <u>caught</u>	232.9* (231.4)	88.2 (92.6)		<u>cotte</u>	154.9* (135.5)	84.1 (70.5)	
<u>caved</u>	264.0 (249.8)			<u>code</u>	184.1 (192.1)		
3. <u>peck</u>	193.3* (147.7)	93.9 (80.9)		<u>bec</u>	122.6* (133.7)	71.1 (71.3)	
<u>peg</u>	205.8 (182.6)			<u>bègue</u>	172.4 (187.4)		
4. <u>safe</u>	162.4*	81.9		<u>sauf</u>	104.1	65.3	
<u>save</u>	198.4			<u>sauve</u>	159.5		
<u>X</u>	181.4* (165.2)	82.9 (86.8)		<u>X</u>	124.3* (134.6)	73.3 (70.9)	
	218.8 (216.2)				169.6 (189.8)		

Numbers in parentheses are Mack's (1982) results.

A (*) between two mean durations indicates that the difference between them is significant at the .01 level.

3.2. Bilingual data

Given the similarity between the French and English consonant voicing-dependent vowel durations, we would expect the two groups of bilinguals to have no difficulty in passing from their native to the foreign language. Any kind of interference between French and English is predicted to be of the positive type which facilitates, rather than impedes, the acquisition of the other language.

As Table IV, and Table V which is a comparison between Tables I and IV, show, the performance of both groups of bilinguals in their native language is very similar to the performance of the monolinguals. Likewise, the performance of the bilinguals in the foreign language is very similar to the performance of the monolinguals. These similarities confirm the conclusions reached above about the performance of the monolinguals and the likeness of the two languages in voicing-dependent vowel duration.

Table V. Average Percentages of the Differences in Duration Between Monolinguals and Bilinguals (From Tables I and IV).

	<u>English</u>	<u>French</u>
English Monolinguals	78.8	-
French Monolinguals	-	69.5
English Bilinguals	76.4	64.1
French Bilinguals	82.9	73.3

An examination of the results for each speaker given in Table VI revealed that all three French-dominant bilinguals' ratios are very close to the monolinguals'. Among English-dominant bilinguals there was a difference between the first two speakers, with ratios that are very close to the monolinguals' (80.5 for AR, 84.8 for SF vs. 78.8 for the combined monolinguals) and the third speaker, CW, with a ratio of 66.6%. The same speaker has a low ratio of 55.9% in her French data, as opposed to the 71.3 and 75.5% for the other two speakers which are much closer to the monolinguals' ratio of 78.8%. A comparison of her total durations in msec. with those of the other bilingual speakers revealed her vowels in the voiceless context both in French and English to be respectively 32.7 and 33.2 msec. longer than the average of the other two speakers. In the voiced context the difference was respectively 90.9 and 116.7 msec., which suggests an artificial self-monitoring of her speech and an exaggeration of the voicing-dependent durations in the context of voiced consonants. In addition and not surprisingly, most of her waveform displays reveal the presence of a more or less extended pause after the test word, which explains the fact that her ratios are closer to the ones found in final pre-pausal context by Mack.⁶

Table VI. Bilingual Subjects' Durational Percentages and Standard Deviations

Native English Speakers				
	English		French	
	%	S.D.	%	S.D.
AR	80.5	2.9	71.3	1.7
SF	84.8	2.1	75.5	6.1
CV	66.6	2.9	55.9	9.0

Native French Speakers				
	French		English	
	%	S.D.	%	S.D.
PT	72.5	3.8	77.7	12.7
CP	76.3	5.6	87.5	11.3
LW	74.4	11.5	92.7	4.1

A difference between speakers also exists in the English data of the French-dominant bilinguals, speaker's PT 77.7% ratio being much closer to the monolinguals' 69.5% than the other two bilinguals' 87.5 and 92.7%. An examination of his absolute vowel durations reveals a difference of 64 msec. preceding voiceless and 46 preceding voiced consonants, compared with the longer durational averages of the other two speakers. The discrepancy is due to his overall faster tempo, compared with the other two bilinguals'. A difference in tempo also existed in French between speaker PT and the other two bilinguals, manifested in 39 msec. shorter duration than the other two speakers before voiceless and 46 msec. before voiced consonants.

4. DISCUSSION

This study examined two basic questions. The first dealt with a comparison between consonant-voicing-dependent vowel duration in English and French in phrase-medial, as opposed to final context examined in Mack's previous study. The other dealt with a comparison between voicing-dependent distinctions in French-English bilingual, as opposed to monolingual, subjects.

With respect to the first issue, it was found that phrase-medially in both languages obstruent (i.e., both stop and fricative) voicing is a significant factor influencing the duration of preceding vowels in monosyllabic words. The weaker effect in French than in English found utterance-finally in Mack 1982 was thus presumably due to a differential effect of utterance-final lengthening which seems to have reduced the vowel duration difference in French and magnified it in English. The results for French and English from the medial context, compared with the results of Flege 1981 for Arabic, suggest that in all three languages there exist differences in preconsontantal vowel duration

which are a consequence of articulatory gestures associated with the voicing of the final consonant and thus follow from constraints on the production mechanism (see Chen 1970 and Raphael 1975 for a discussion of a number of proposed physiological explanations). Unlike Arabic, however, English and French exploit this universal tendency by using it as the basis for a phonetic rule.

With respect to the second issue, it was found, as predicted by the outcome of the first question, that the French and English values for both groups of bilinguals were similar to those of the monolinguals. Divergences between individual speakers were readily explainable in terms of tempo differences and differences in prosodic structure.

A complete understanding of consonant-voicing-dependent vowel duration in these two languages would require an extension of this study to additional speakers and contexts (in particular, to phrase-medial non-focused position and phrase-final nonutterance-final position) and to additional languages, which like Arabic, would significantly differ from French and English in their treatment of durational differences.

NOTES

1. Mack's subjects read words in isolation printed each on a 3x5 card, which as noted by Klatt (1976:1211), is comparable to words occurring in utterance-final position.
2. Formant transitions have, however, been shown to contribute effectively to the perceived duration of the vowel which cues final consonant voicing (e.g., Denes 1955, Raphael 1975, Raphael et al. 1980).
3. The differences found here (78.8% for English and 69.5% for French) are smaller than the ones found for English by Klatt 1973 (about 33%), presumably due to the exclusive use of minimal pairs in the present study, as well as potential differences in speaking rate. For a comparison of final-consonant effect in phrase-final syllables vs. other positions in American English connected discourse, see Klatt 1975 and Umeda 1975.
4. The larger durations, and consequently higher ratio, for English caught/cawed are probably due (1) to the articulation of the vowel as a phonetically long monophthong in the dialect investigated here, and (2) to the occurrence of six voiced flaps (out of 15 tokens) for caught.
5. Due to the difference in quality between the vowels in the four pairs, the absolute vowel duration results found here before stops, as opposed to fricatives, do not allow for comparison with previous studies of voicing-dependent durational distinc-

tions in utterance-final contexts in English (House and Fairbanks 1953, Peterson and Lehiste 1960) and French (Delattre 1951, Belasco 1953) which found larger durations in the context of fricatives than stops. More precisely, it was found that vowels are lengthened most before voiced fricatives, about equally before voiceless fricatives and voiced stops (and nasals), and least before voiceless stops (see Klatt 1973 with similar findings phrase-internally in English).

6. One additional factor was that speaker CW was also the research assistant for the project who helped with the recordings and digitizing, and her knowledge of what the study was about may have influenced her performance.

REFERENCES

- Belasco, S. (1953). "The influence of force of articulation of consonants on vowel duration," J. Acoust. Soc. Am. 25: 1015-6.
- Chen, M. (1970). "Vowel length variation as a function of the voicing of the consonant environment," Phonetica 22: 129-59.
- Delattre, P. (1951). Principes de phonétique française à l'usage des étudiants anglo-américains. Middlebury College.
- Denes, P. (1955). "Effect of duration on the perception of voicing," J. Acoust. Soc. Am. 27: 761-4.
- Flege, J. E. (1981). "Cross-language phonetic interference: Arabic to English," Lang. Speech 24,2: 125-46.
- House, A. S., and Fairbanks, G. (1953). "The influence of consonant environment upon the secondary acoustical characteristics of vowels," J. Acoust. Soc. Am. 25: 103-13.
- Klatt, D. H. (1973). "Interaction between two factors that influence vowel duration," J. Acoust. Soc. Am. 54: 1102-4.
- , (1975). "Vowel lengthening is syntactically determined in connected discourse," J. Phon. 3: 129-40.
- , (1976). "Linguistic uses of segmental duration in English: Acoustic and perceptual evidence," J. Acoust. Soc. Am. 59: 1208-21.
- Mack, M. (1982). "Voicing-dependent vowel duration in English and French: Monolingual and bilingual production," J. Acoust. Soc. Am. 71: 173-8.
- Peterson, G. E., and Lehiste, I. (1960). "Duration of syllabic nuclei in English," J. Acoust. Soc. Am. 32: 693-703.
- Raphael, L. J. (1975). "The physiological control of durational differences between vowels preceding voiced and voiceless consonants in English," J. Phon. 3: 25-33.
- Raphael, L. J., Dorman, M. F., and Liberman, A. M. (1980). "On defining the vowel duration that cues voicing in final position," Lang. Speech 23: 297-307.
- Umeda, N. (1975) "Vowel duration in American English," J. Acoust. Soc. Am. 58: 434-45.
- Zimmerman, S. A., and Sapon, S. M. (1958). "Note on vowel duration seen cross-linguistically," J. Acoust. Soc. Am. 30: 152-3.

**CANTO SANTO:
ENGLISH RHYTHM AND RHYME IN SPANISH HYMNS***

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0. Introduction

Recent investigation into musically conditioned phonological aberrations has shown that while languages make use of many of the same strategies for matching texts and tunes, some of the 'solutions' freely permitted in one language may be categorically rejected by speakers of another. Cross-cultural and cross-linguistic research has implied, furthermore, that even advanced non-native speakers of a language often fail to recognize the differences between their first and second languages with respect to processes characteristic of sung texts, such as stress shift, consonantal insertions and deletions, and so forth.

The present study explores the possible influence of English rhythm and rhyming structure on one genre of Spanish sung texts for which well-documented examples of both original versions and translations are available: namely, evangelical hymns. Detailed analysis of hundreds of verses suggests that Spanish translations of English hymns are less likely to make use of vocalic rhyme (assonance) and stress shift than are hymns originally written in Spanish. Instead, these translations tend toward the strict English pattern of consonant (total) rhyme and an accompanying avoidance of shifted stress.

By documenting the disparity of poetic preferences between translations and original lyrics, this paper provides a significant counterexample to the claim that stress shift is tolerated in Spanish when texts are forced against (or created for) existing tunes but that it is more easily avoided when text and tune are created together by the same artist. The data presented here also affirm that there exists a non-native element in Protestant Spanish-language hymnody.

1. Types of Rhyme

It is advantageous to recognize two important types of rhyme in Spanish songs and in Spanish poetry in general: total and partial (Balbín 1975:229). *Reiteración rítmica total*, or **total rhyme**, illustrated in (1a), refers to the equivalence of two phonetic strings from the last stressed vowel to the end of the line, including, of course, consonants and vowels alike. *Reiteración rítmica parcial*, on the other hand, defines this equivalence in terms of only certain classes of segments while ignoring the presence, absence, or dissimilarity of others. Illustrated in (1b) is the type of partial rhyme that interests us most—that which is based on matching only the vowels in the two strings, ignoring consonants but counting, as before, from the last stressed vowel to the end of the line. I will refer to this as **vocalic rhyme**.

(1) (a) cánto : sánto

(b) h́ímno : boníto

Given Spanish rhythmic tradition, the nature of the poetry under investigation here, and the scope of the present paper, it would be counterproductive to detail other types of

partial rhyme (Balbín's *consonántica*, for example) or other elements of Spanish versification (such as line length or lexical stress patterns); nevertheless, these variables may prove worthy of future research. Nor will I count, for statistical purposes, total rhyme as a subset of vocalic rhyme, even though according to the above definitions the two are not mutually exclusive. It should also be pointed out that these two types of rhyme are often known as *consonante* (total rhyme) and *asonante* (vocalic rhyme).

Spanish poetry is characterized by extensive use of both total rhyme and vocalic rhyme. English poetry, by comparison, makes relatively little use of the latter, employing instead total rhyme—to the extent that a considerable number of native English speakers with no formal training in poetics would not consider other types of segmental equivalence to constitute rhyme at all. This disparity between the two languages serves as a point of departure from which deviation might be perceived (at least at some level of consciousness) and tested.

2. Musically Conditioned Stress Shift

Apparently researchers have only recently begun to formally recognize sung speech as a medium worthy of scientific investigation with interesting implications for linguistic theory. Janda and Morgan (1986, 1988a, 1988b) and Morgan and Janda (1987a, 1987b, 1988) show not only that music provides the necessary context for certain phonological processes disallowed in spoken language but also that certain disparities between spoken vs. sung speech are language-specific rather than universal. In addition to other phonological aberrations, these studies note the overwhelming evidence of stress shift in Spanish songs to syllables which would be necessarily stressless in the spoken string, as we see illustrated in (2a). Experimental evidence further supports their claim that a corresponding process of stress shift (as suggested by (2b)) does not exist in musical domains of English phonology.

(2)

(a) El pe- rro de mis her- ma- nos

(b) * My broth- er's dog, my broth- er's dog

In order to avoid counterclaims by those who would cite secondary stress and synalepha as possible explanations for apparent stress shifts, the present work follows the lead of previous documentation in this area (Janda and Morgan 1986) in ignoring such allegedly marginal cases. All examples of shifted stress counted in this research appear in lexical items which are completely incompatible with the sung stress pattern in any conceivable spoken rendition, including citation form.

3. Corpus

Providing data for this study were the *Baptist Hymnal* (Nashville, Tennessee: Convention Press, 1975) and the *Himnario de alabanza evangélica* (El Paso, Texas: Editorial Mundo Hispano, 1978), two of the most widely used hymnals in churches in the U. S. and abroad affiliated with the Southern Baptist Convention, the largest single Protestant group in the United States. While other genres of sacred and secular music certainly merit consideration in a study of this type, Baptist hymns were chosen for at least three reasons. First, the original and translated versions of hundreds of hymns are readily

accessible in the two collections mentioned above. Secondly, these volumes document important information about both the individual hymns and the collections themselves: names and some biographical information about composers, lyricists, and translators; metrical, topical, and alphabetical indexing; etc. Thirdly, we might have suspected evangelical hymns of being influenced by English in the first place, given the role of U. S. Protestants in Spanish and Latin American churches and the deeply rooted musical tradition of Baptists.

The song sample was collected as follows: starting from the beginning of the Spanish-language hymnal, I tabulated the rhyming patterns and number of stress shifts in the first 25 hymns in each of three categories: (1) those translated into Spanish; (2) those originally in Spanish; and (3) those written originally in Spanish by native-speaker songwriters whose names are known (that is to say, by specific composers rather than 'anonymous', 'traditional melody', and the like).¹ Although all of the hymns in the Spanish-language collection (over 500 in all) were surveyed, the members of this last category (those written by non-anonymous native-speakers) only totaled 18. For the first category (those which have been translated into Spanish and which, it should be added, have counterparts in the English-language hymnal) statistics for English versions were also tabulated. It will be noticed that the first category and the second are mutually exclusive (as are the first and third), given that any given hymn must be either an original Spanish version or a translation from another language, but not both. All of the hymns in the third category, however, are also in the second, since the second category includes all hymns written originally in Spanish--both by known native speakers and by the infamous 'Anónimo' and 'Tradicional'.

Within each category, I was careful to include not more than one song by any one artist or with the same tune. This was to avoid skewing the results in the direction of a certain tendency of a particularly popular or prolific songwriter.

4. Some Illustrations.

The words to representative hymns appear in (3).

- (3) (a) Miles hay en lejanas regiones
Que por sendas oscuras hoy van.
El Señor aún anhela salvarles:
Vé, tú pues, la semilla a sembrar.
- ¿Cuántos hay que se van a la muerte
Sin saber esta nueva eternal?
Vida, fuerza, talentos y bienes
Dios os brinda, ¡salid y luchad!
- Pronto el día se irá para siempre
Y la magna ocasión pasará
Presto id, el mensaje es urgente,
Que el Señor con poder os guiará.
- ¡Oh alzad vuestros ojos a los campos!
La bendita Palabra sembrad.
De amor y de fe inflamados,
Ricos frutos Jehová os dará.

- (b) Word of God, across the ages Comes thy message to our life;
Source of hope forever present In our toil and fears and strife;
Constant witness to God's mercy, Still our grace whate'er befall,
Guide unfailing, strength eternal, Offered freely to us all.

Story of man's wondrous journey From the shadows of the night;
Garnered truth of sage and prophet, Guiding forward into light;
Words and deeds of Christ our Master, Pointing to the life and way,
Still appealing, still inspiring, 'Mid the struggles of today.

In the tongues of all the peoples May the message bless and heal,
As devout and patient scholars More and more its depths reveal;
Bless, O God, to wise and simple, All thy truth of ageless worth,
Till all lands receive the witness And thy knowledge fills the earth.

- (c) Gracias dad a Jesucristo Por su sempiterno amor;
Alabadle, santos todos, El es nuestro Salvador.
Que sus siervos por doquiera Canten su benignidad;
Los que temen a su nombre Hablen de su libertad.

En cadenas de amargura Yo pedí su protección;
Escuchó mi voz y mi alma La salvó de la prisión.
Si me asalta el enemigo Nada tengo que temer;
En la lucha tremebunda Con Jesús podré vencer.

Quien confía en Jesucristo La victoria llevará,
Mas si fía en los hombres, Su esperanza fallará.
Oh Señor, tu santo nombre Alabamos sin cesar;
Por tu amor incomparable Gracias te queremos dar.

'Oh alzád vuestros ojos' in (3a) is an example of a hymn written originally in Spanish by Samuel Cifuentes (this puts it in categories 2 and 3). It also just happens to be an example of a hymn with both total and vocalic rhyme, but mostly the latter, as we see in (4a).

- | | |
|--|---|
| (4) (a) <u>Vocalic rhyme</u>
van : sembrar
muerte : bienes
eternal : luchad
siempre : urgente
campos : inflamados
sembrad : dará | (b) <u>Total rhyme</u>
pasará : guiará |
| | (c) <u>Other</u>
regiones : salvarles |

The lone example of total rhyme is the rather unconvincing one given in (4b); notice, specifically, that the syllabic onset preceding the stressed vowel is the same in both words, rendering a pair which is structurally parallel to English *hurray* : *beret*, which some native speakers are sure to consider less of a good match than, say, *hurray* : *today*, where the consonants preceding the stressed vowel are different. Meanwhile the pair given in (4c) appears in the first verse of the hymn where the second and third verses have vocalic rhyme. I felt obliged to include *regiones* : *salvarles* in a rhyme category labeled 'other', however, where I also tallied things like repetitions of the same word or phrase, which occurs frequently but should not be considered rhyme for our purposes here.²

The other two song samples are the English (3b) and Spanish (3c) versions of one hymn. The English words were written by Ferdinand Q. Blanchard for the tune known as 'Austrian Hymn' by Franz Joseph Haydn. The Spanish translation of the English is by Juan N. de los Santos. In both of these hymns we find total rhyme: English *life : strife*, etc. and Spanish *amor : Salvador*, etc.

5. Results and Discussion.

This information, along with similar statistics for scores of other hymns, is given in the appendices. Appendix A lists, for both English and Spanish hymns in category 1, the number of cases of total rhyme, vocalic rhyme, 'other' rhyme (or non-rhyme) and shifted stress. In English there were only two examples of vocalic rhyme, but 184 cases of total rhyme—an obvious English preference. Spanish, on the other hand, has 36 attested cases of vocalic rhyme—fully 16% of all cases of rhyme. Clearly vocalic rhyme has an important status in Spanish poetics.

Appendix B shows that this status is even more important in the case of hymns which were originally written in Spanish. Here, 36 cases of vocalic rhyme were also found—but since there were only 118 cases of total rhyme and 11 uncategorized rhymes, repetitions, and non-rhymes, vocalic rhyme here represents 22% of the total. In Appendix C we see that 26% of all rhyme is vocalic.

Comparing the data in all three categories and in terms of the ratio of vocalic to total rhyme, we can eliminate the miscellaneous and uncategorized rhymes and concentrate on the two types that interest us here. The ratios obtained are given in (5).

(5) Ratio of Vocalic to Total Rhyme:

Appendix A:	.20	(Category 1: Hymns translated from English)
Appendix B:	.31	(Category 2: Hymns originally in Spanish)
Appendix C:	.43	(Category 3: Hymns in Spanish by non-anonymous artists)

The ratio for category 3 is, then, dramatically higher than that of category 1. In order to speculate as to the statistical significance of these data, we would have to have, as a point of departure, an 'expected ratio' of rhyme type to rhyme type in a typical Spanish song. This might prove difficult, given the wide range of styles, countries, histories, cultures, etc. covered by Spanish music. But if, as Lehiste 1987 says, 'the suprasegmental system of a language is crystallized in the metric structure of its traditional poetry' (p. 165), we might take folksongs as our point of departure, these being the most 'typical' and 'native' songs of all. One look at a collection of folksongs should convince anyone that the ratio of vocalic to total rhyme is much greater than what we have seen here. With this as the null hypothesis, there is very little probability that our results for hymns are due to mere chance.

These tables show, furthermore, that the number of cases of stress shift is higher in original Spanish-language versions than in translations: nine out of the 25 songs in Appendix B had at least one case of shifted stress, with an overall total of 19 occurrences. Appendix C shows us 16 occurrences of musically conditioned stress shift in 10 out of 18 songs. In Appendix A, however, we see that only six shifts of stress occur, and these in only 4 of the 25 hymns listed. The English hymns, of course, have no shifted stress whatsoever.

Given the wide range of evidence presented in Janda and Morgan 1986, we cannot

APPENDIX C

Hymns Originally in Spanish by Known Native-Speaker Songwriters
(TR=total rhyme; VR=vocalic rhyme; OR=other rhyme; SS=shifted stress)

<u>Hymn Tune</u>	<u>Hymn # & Title</u>	<u>Songwriter</u>	<u>TR</u>	<u>VR</u>	<u>OR</u>	<u>SS</u>
1. Mi rey y mi amigo	47 Jesús es mi rey ...	Vicente Mendoza	9	0	0	0
2. Inmolado	102 Jesucristo fue ...	R. D. Grullón	2	4	1	0
3. Espinas de mi Cristo	106 Espinas de mi Cristo	Rafael Moreno Guillén	2	0	0	0
4. Jesús venció la muerte	122 Jesús venció la ...	Jaime Redín	5	0	0	0
5. Elección	161 Bendito Dios	Raúl R. Solís	8	0	0	2
6. Vida abundante	178 Vida abundante	Rafael E. Urdaneta M.	4	3	2	0
7. Ven, amigo	206 Ven, amigo, a Jesús	Juan M. Isáis	4	4	2	0
8. Al abrigo de Dios	220 El que habita al ...	Luz E. & Rafael Cuna	0	2	1	1
9. Alzad vuestros ojos	281 ¡Oh alzad vuestros...	Samuel Cifuentes S.	1	6	1	0
10. Escogido	326 Escogido fui de Dios	Víctor Garrido	0	3	1	1
11. Consagración	363 Consagración	Abel P. Pierson Garza	6	0	0	0
12. Southwestern	415 Nuestra oración	Leslie Gómez Cordero	8	2	2	2
13. Fiel mayordomo	428 Fiel mayordomo seré	Berta I. Montero	6	0	1	4
14. Pequeño parque	439 Qué lindo es cantar	D. de Carro & J. Pistilli	5	3	4	1
15. Amor	448 Dios es amor	Timoteo Guerrero	1	2	0	0
16. Canten con alegría	462 Canten con alegría	Alfredo Colom M.	8	0	0	8
17. Cada día que pasa	486 Cada día que pasa	Jorge Díaz M.	3	2	1	0
18. Te exaltaré, mi Dios...	512 Te exaltaré, ...	Casiodoro Cárdenas	0	0	0	0
TOTALS:			72	31	16	19

IV

SYNTAX AND MORPHOLOGY

COUNTABILITY AND IDIOMATICITY
IN DEVERBAL NOUNS*

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Countability and uncountability are considered inherent characteristics of nouns. Nouns are normally subdivided into countable and uncountable according to these characteristics. Interestingly, however, typical countable nouns such as house and car can be converted into uncountable nouns according to their functions as is shown below (Christophersen and Sandved 1970:110):

- a. Considering the size of the site, there is simply too much house on it.
- b. Car dealer: The price may seem a bit high, but you get a lot of car for your money.

Deverbal nouns also function as countable and uncountable as follows:

- a. There is a movement towards simple designs in clothing these days. ... countable
- a'. She teaches movement and drama. ... uncountable
- b. Discussions between NCB and NUM took place in a pleasant atmosphere. ... countable
- b'. There has been too much discussion on the matter. ... uncountable

These observations suggest that almost all nouns including deverbal nouns may possess countable and uncountable properties. The determination of which property occurs will depend on the grammatical/semantic context in which the noun is used.

Above, I have made general remarks on the subject. But before proceeding to a discussion of the relation of countability to idiomaticity in deverbal nouns, I should like to discuss some earlier views of countability.

Huddleston (1984:245) lists the following four categories of determiners as effective for testing the relative degrees of countability in nouns:

- (1) The cardinal numerals one, two, three, etc.

- (2) Other numerically quantifying expressions such as both, a dozen, etc.
- (3) The 'fuzzy' quantifiers many, several, few, etc.
- (4) A, another, each, every, either, neither, which take singular heads

The application of the four classes of determiners above allows us to classify nouns into five countability types ('+' indicates that the given NP environment defines the nouns as countable, and '-' indicates the opposite):

	(1)	(2)	(3)	(4)
1. equipment	-	-	-	-
2. knowledge	-	-	-	+
clothes	-	-	+	-
3. cattle	-	+	+	-
4. police	+	+	+	-
5. cake	+	+	+	+

Allan (1980:546) proposes five tests to determine the countability preferences of nouns as follows:

- (1) EX-PL (NP-external plural registration)
- (2) A + N (a unit denominator ranging over the noun)
- (3) All + N
- (4) F + Ns (a fuzzy plural denominator ranging over the noun)
- (5) O-DEN (denominator other than the unit, or fuzzy denominators)

The following are examples of words to which the above tests have been applied:

	(1)	(2)	(3)	(4)	(5)
1. car	+	+	+	+	+
2. oak	+	+	-	+	+
3. cattle	+	-	+	+	-
4. Himalayas	+	+	+	-	-
5. scissors	+	-	+	?	-
6. mankind	+	+	-	-	-
7. admiration	-	+	-	-	-
8. equipment	-	-	-	-	-

* In the All + N test, it is FAILURE that gets a plural, not success (the capitals are Allan's).

Quirk et al. (1985:255-257) divide determiners into five types with respect to their co-occurrence

with the noun classes – singular count (chair, problem, etc.), plural count (chairs, problems, etc.), and non-count nouns (furniture, information, etc.). Of the determiners listed by Quirk et al., the following seem to have a direct relation to the (non-)countability of deverbal nouns:

- (1) Zero article
- (2) The assertive determiner some (unstressed /səm/) and the non-assertive determiner any
- (3) The quantitative determiner enough
- (4) The indefinite article a/an
- (5) The universal determiners every and each

The application of these test frames is shown in the chart below:

	(1)	(2)	(3)	(4)	(5)
1. furniture	+	+	+	-	-
2. information	+	+	+	-	-

Taking into account all the countability test frames given above, I will now present a rearrangement of the test frames with examples of deverbal nouns on the left:

	uncountable			countable		
	∅	much/ (a)little	any/ some	a	pl	many/ few
1. inquiry	-	-	-	+	+	+
2. statement	-	-	+	+	+	+
3. discussion	-	?	+	+	+	+
4. intention	-	+	+	+	+	+
5. reference	+	?	+	+	+	+
6. allowance	+	+	+	+	+	?
7. admiration	+	?	+	+	-	-
8. information	+	?	+	-	-	-

Examples of the application of the test frames are given only of inquiry to save space:

- a. *We made inquiry about the matter.
- b. *We made much inquiry about the matter.
- c. *We made some inquiry about the matter.
- d. We made an inquiry about the matter.
- e. We made some inquiries about the matter.
- f. We made many inquiries about the matter.

Now let us consider some different types of deverbal nouns.

I have divided deverbal nouns morphologically into the following types:

- (1) V = N (no change of form) – drink, shave, walk, etc.
- (2) V + suffix = N – concession, denial, suggestion, etc.

The morphological classification, as we shall see, has some connection with the countability and collocability of the deverbal nouns with the verbs give, have, make and take.

To see the relationship between deverbal noun suffixes and countability, I examined the countability and uncountability of all the deverbal nouns with suffixes listed in the Longman Dictionary of Contemporary English (1987). The Dictionary labels almost all nouns as 'c(ountable)' or 'u(ncountable)', and therefore is convenient for my present purposes, although actual usages seem to differ somewhat from the classifications in the Dictionary.

The total amounts to 651. The following is the summary of the countable/uncountable classification of deverbal nouns by suffix (the figures in parentheses on the left column show their occurrences, and the figures on the right column show their occurrences and percentages respectively):

	C and U	U only	C only
1. -(a)tion (324)	258 (80%)	59 (18%)	7 (2%)
2. -ment (83)	64 (77%)	14 (17%)	5 (6%)
3. -nce (70)	47 (67%)	22 (31%)	1 (1%)
4. -sion (58)	44 (76%)	12 (21%)	2 (3%)
5. -age (17)	12 (71%)	3 (18%)	2 (12%)
6. -ure (16)	13 (81%)	2 (13%)	1 (6%)
7. -al (13)	10 (77%)	2 (15%)	1 (6%)
8. -(r)y (11)	10 (91%)	1 (10%)	0 (0%)
9. other suffixes (59)			

The following are some examples of each suffix:

	C and U	U only	C only
1. -(a)tion	action composition examination	admiration completion detection	allegation plantation ramification
2. -ment	agreement investment statement	advancement astonishment equipment	assortment pavement requirement
3. -nce	allowance occurrence reference	assistance dependence excellence	grievance
4. -sion	allusion discussion provision	derision exclusion permission	convulsion invasion
5. -age	breakage marriage usage	coverage drainage storage	appendage passage
6. -ure	closure failure mixture	displeasure forfeiture	signature
7. -al	arrival denial refusal	requital retrieval	signal
8. -(r)y	discovery entry robbery	mastery	

The suffixes listed above represent all the major suffixes used to form deverbal nouns. Hansen et al. (1982:89) state as follows:

Besonders viele weitgehend synonyme Typen finden sich im Bereich der Modelle zur Bildung von deverbalen Substantiven mit den Suffixen -age_N, -al_N, -ance/-ence_N, -ation_N, -ing_N, -ment_N und -ure_N. Die nach diesen Modellen gebildeten Substantive bezeichnen primär eine Handlung (seltener einen Vorgang) schlechthin (Nomina actionis: 'the act(ion)/process of V-ing (...)', z. B. breakage, withdrawal, interference, experimentation, flogging,

development, disclosure) oder einen einzelnen (diskreten) Handlungsakt (Nomina actus: 'an instance [discrete act] of V-ing (...)', z. B. withdrawal, performance, cancellation, misunderstanding, retirement, exposure; vgl. auch $-\emptyset_{N1}$)

I will not take space to go deeply into the meanings of each suffix. Good discussions on these meanings are found in Jespersen (1961: Part VI), Marchand (1969: IV) and Quirk et al. (1985: 1548-51).

At the risk of oversimplification, the following gradience can be set up in terms of the suffixes and countability:

U(ncountable)	C(ountable)
-nce >	-sion > -(a)tion > -ment

The collocation of suffixed deverbal nouns and the verbs give, have, make and take can be regarded as more or less idiomatic and it seems difficult to predict collocational possibilities purely in terms of the suffix variants. I can, however, point out some tendencies prevailing there.

Make can occur with most suffixes: with the '-(a)tion' suffix: make an accusation/acquisition/adaptation/allocation/annotation/classification/differentiation/identification/modification and substitution; with the '-ment' suffix: make an adjustment/announcement/arrangement/assessment/improvement/pronouncement and statement; with the '-nce' suffix: make allowance(s)/an appearance/choice/difference/entrance and reference; with the '-sion' suffix: make an admission/concession/confession/conversion/decision/division/impression/provision/revision and submission; with the '-al' suffix: make an appraisal/avowal/proposal and withdrawal; with the '-(r)y' suffix: make an apology/discovery/entry/inquiry and recovery; and with the '-ure' suffix: make a conjecture and disclosure.

Take does not allow the indefinite article with deverbal nouns, as in take action/exception/objection/possession/attendance and delivery. This characteristic is true of deverbal nouns with no suffixes as well, as in take aim/care/charge/command/control/cover/delight/effect/fright/heed (of)/issue (with)/leave (of)/notice (of)/part/place/pride (in)/root/shape and wing.

As regards the collocation of give and have with deverbal nouns, semantic factors rather than syntactic/morphological factors seem to be at work in the determination of the collocations.

Give, in this light, can be collocated with deverbal nouns expressing 'exertion' or 'spontaneous response', as in

- a. He gives a cough/laugh/yell.

Furthermore, the verb is in collocation with those deverbal nouns which are transferable concretely or abstractly, in the grammatical pattern of two-object constructions, as in

- a. I gave her a call/kiss/welcome.

With respect to have, the collocation of the verb occurs irrespective of suffix variants: have a conversation/education/an inclination/(no) intention/a recollection/satisfaction/an acquaintance/confidence/significance/an argument/embarrassment/a discussion/permission and sympathy. It follows, therefore, that instead of making syntactic/morphological generalisations, we can do better in giving semantic explanations of the collocations, which would be, "the subject (often human) suffering/possessing an emotional state and/or having the will to do, sometimes towards the second party".

I should like to make a few observations regarding deverbal nouns with zero suffix in relation to their countability.

First of all, these nouns often appear with the indefinite article a, usually not in the plural:

- a. have a chat/chew/listen/sleep/stroll/
swim/think

But some deverbal nouns appear in both forms:

- a. make an attempt/attempt; a comment/comments;
an effort/efforts; an excuse/excuses

Some nouns appear more often in the plural:

- a. make gains/have hopes/take losses/take
measures/take precautions/have scruples/
take steps/make strides

Some deverbal nouns more commonly appear with no indefinite article:

- a. Take care/give chase (to)/make contact/
take control/make a deal/take delight/
make haste/take heart/give help/make love/
take note (of)/give place

Now I should like to go on to the relation of countability to idiomaticity in deverbal nouns.

The following are the criteria to be considered as characterising idioms:

<u>Semantic</u>	<u>Syntactic</u>
1) non-deducibility of meaning	transformational deficiency
2) idiomatic/literal meaning	
3) opaque/transparent degrees of meaning	
4) non-substitutability	
5) non-translatability	

The distinction between semantics and syntax in this framework is not so rigid, nor does it need to be so. I will not go into an item-by-item discussion of these criteria at this point, except to say that all dictionaries and books dealing with idioms employ at least some of these criteria.

Take objection is an interesting collocation in view of its countability and idiomaticity. The deverbal noun objection is also collocated with have and make, usually either in the singular with the indefinite article a, or in the plural:

- a. I took objection to his plan.
- b. I had an objection to his plan.
- c. I made objections to his plans.

One difference between these collocations is, it seems to me, that take has a stronger agentivity than the other verbs. Other similar examples include give/make a charge:take charge; have an effect:take effect; give a fright:take fright; have a heart:take heart; give a leave:take leave (of); make an exception:take exception (to); make an attendance:take attendance; have a possession:take possession (of).

Those phrases without the indefinite article are more idiomatic than those with a in view of the frozenness of idiom. For instance, take aim is more idiomatic than make a mistake. But such phrases as have education/knowledge/sympathy seem to stand in-between, because these phrases require the presence of a when they take modifiers as in

- a. He had a good education at Oxford.
- b. He has an extensive knowledge of Latin.
- c. I have a great sympathy for her.

Such phrases as take aim, take shape and take retirement, on the other hand, do not require the presence of a even when they take modifiers as in

- a. The officer took careful aim before he fired.
- b. The idea finally took concrete shape.
- c. He took early retirement.

Such phrases as take place and take root are more idiomatic than those just given in the sense that they rarely take any modification and that they have meanings which are rather undeducible from the meanings of their constituents.

By extension of the discussion so far, the following collocations can be considered to be more or less idiomatic. I give here some examples in relation to their non-countability: take charge (of), make conversation, take effect, take exception (to), take place, give rise to and take root. All of these phrases lack a and plurality. We can present these properties and some other semantic and syntactic characteristics of idioms mentioned earlier, in a simplified tabulation as follows (I have indicated my subjective judgments in the semantic column):

	Syntactic			Semantic	
	<u>a</u>	pl	modifier	passive	non-deducibility
1) take charge (of)	-	-	-	-	weak
2) make conversation	-	-	+	?	weak
3) take effect	-	-	-	-	weak
4) take exception (to)	-	-	+	?	strong
5) take place	-	-	-	-	strong
6) give rise to	-	-	-	-	strong
7) take root	-	-	-	-	strong

Nouns which usually take a sometimes lack the indefinite article in the idiomatic context. These phrases often show a high degree of idiomaticity demonstratively in terms of transformational deficiency. The following are some examples: break step, keep house, lose face, take wing, touch bottom and turn turtle.

Thus far, we have seen in the study of deverbal nouns that there is a relationship between countability and idiomaticity. This appears to be the case with ordinary nouns as well. For instance, the indefinite article a and the possessive 'one's' give an idiom a more literal interpretation. The following set of examples seems to show the progression from more idiomatic to less idiomatic:

	<u>most idiomatic</u>	<u>less idiomatic</u>	<u>least idiomatic</u>
(1)	set foot on	set eyes on	set one's heart on
(2)	give ear to	lay hands on	lay one's hands on
(3)	lose face	pull a face	show one's face

As regards the relation of 'one's + noun' patterns to countability in their semantic senses, the following points seem to deserve attention:

(1) Generally speaking, 'body nouns' (eg. hand, face and leg) have both singular and plural forms with idiomatic meanings:

a. Mary lost her heart to another man.

a'. Mary and Betty lost their hearts to the same man.

b. He pulled my leg.

b'. Many people were pulling our legs when they reported seeing the abominable snowman.

(2) Some countable nouns in idioms have no corresponding plural forms as idioms presumably because these nouns have an abstract meaning and are therefore uncountable:

a. let one's hair down — *let one's hairs down

b. find one's tongue — *find one's tongues

(3) An uncountable noun used in an idiom has only a singular form:

a. lose one's touch — *lose one's touches

b. pull one's weight — *pull one's weights

(4) A plural noun used in an idiom cannot be singularised:

a. burn one's bridges — *burn one's bridge

b. drag one's feet — *drag one's foot

The permissibility of both singular and plural numbers is not confined to the body nouns. There are other kinds of nouns which have the same characteristics as follows:

a. tighten one's belt — tighten one's belts

b. turn one's coat — turn one's coats

c. blow one's own trumpet — blow one's own trumpets

I have demonstrated an interesting relationship between countability and deverbal nouns, and have shown that degrees of countability relate closely to degrees of idiomaticity. Furthermore, I have extended discussion of countability and idiomaticity to body nouns. Clearly, countability interacts with idiomaticity so as to directly affect semantic modification and syntactic frozenness in linguistic expressions. The higher the degree of uncountability, the higher the degree of idiomaticity.

Notes

* I am grateful to Dr Donald Smith for reading and commenting on an earlier version of the draft.

1) Mufwene (1984) recognises three kinds of tendency in nouns/nominals in terms of their countability:

(1) those nouns/nominals that have the least rigid uses and can alternate freely without invoking a particularly marked context (eg. nouns of animals, fruits and plants); (2) those nouns/nominals that have strong individuated preferences but could in some restricted or highly marked contexts (perhaps) have non-individuated uses (eg. chair, table, trick, accident, event); and (3) those nouns/nominals that have strong preferences for non-individuated uses (eg. fun, moisture, gratuity) and which may have individuated uses in highly marked contexts.

It is the last kind of noun that I have dealt with in my present discussion.

References

- Akimoto, M. (1983). Idiomacity. Tokyo: Shinozaki Shorin.
- Allan, K. (1980). Nouns and Countability. Language 56. 541-67.
- Christophersen, P. and Sandved, A. O. (1970). An Advanced English Grammar. Hampshire: Macmillan.
- Green, G. M. (1974). Semantics and Syntactic Regularity. Bloomington: Indiana University Press.
- Hansen, B. et al. (1985). Englische Lexikologie. Leipzig: Enzyklopädie.
- Hirtle, W. H. (1982). Number and Inner Space: A Study of Grammatical Number in English. Québec: Presses de l'Université Laval.
- Huddleston, R. (1984). Introduction to the Grammar of English. Cambridge: Cambridge University Press.
- Jespersen, O. (1961). A Modern English Grammar on Historical Principles. Part VI. London: Allen&Unwin.
- Marchand, H. (1969). The Categories and Types of Present-Day English Word-Formation. Second Edition. Munich: Beck.
- Mufwene, S. S. (1984). The Count/Mass Distinction and the English Lexicon. Testen, D. et al. (eds.) Lexical Semantics. Chicago: Chicago Linguistic Society. 200-221.
- Quirk, R. et al. (1985). A Comprehensive Grammar of the English Language. London: Longman.

Longman Dictionary of Contemporary English (1987).

Second Edition. London: Longman.

Longman Dictionary of English Idioms (1979). London:
Longman.

THE IMPERATIVE ---- AN OCTOPUS NETWORK

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Commonly perceived exclusively as a verb mood, the imperative might more correctly be considered a social process since it involves the whole sentence together with its social context.

First of all, we need to recognize that mood is a grammatical term, morphologically classifiable, whereas modality, as Palmer (1986) notes, is a notional semantic term that affects the entire utterance. Once we accept modality as adaptable to the functional role of the verb, then we may better comprehend how the imperative sneaks its tentacles into the interrogative, declarative, future, and subjunctive domains.

In general, a verb in the active voice expresses an action on behalf of the subject-agent; in the imperative, the intention of the speaker gives rise to a cause-effect re-action in the hearer. Even when the verb is not expressed, its intentional modal force is enough to initiate re-action. For example, the imperative modality that is implicit in the noun: FIRE! confers the power to move masses of people in the total absence of an apparent syntactic directive. The free utterance: FIRE! may thus imply the verb of intention: RUN! This case of a noun-subject which substitutes for an imperative verb-subject is possible because there is a whole social process serving as the anaphoric background that imbues the noun with active meaning, for the element of WILL has activated an INTENTION.

The primordial nature of the imperative is

demonstrated by the fact that studies of infant language learning indicate that imperative intentions develop well before speech (Brown 1970, Kates 1980, and Searle 1983). As time passes, social restraints impose politeness rules, yet the underlying imperative intentions remain, compressed into more sophisticated guises. The request act may become more or less polished or occult, but the intentional goal still remains, the imperative modality being functionally conveyed by all types of utterances. The interrogative request: Would you mind passing the salt?..is actually a rhetorical question, that is, a false interrogative, whose impact is clearly the imperative: Pass me the salt.

If we look further into the subject of rhetorical questions, we become aware of the fact that they act as one of our most pliable communicative tools, aptly masking our imperative intentions. When explicit commands are not socially acceptable, we all often resort to indirect rhetorical questions as devices of persuasion (Anzilotti 1982). Levinson's (1983) book on pragmatics clearly shows how we are wont to make indirect requests rather than resort to the straightforward imperative.

As an instrument of communication, the functional imperative lies latent even in the most vacuous of salutations. "HELLO," according to circumstances, may trigger commands such as:

Talk to me.	Ask me something.
Listen to me.	Look at me.
Help me.	Take notice of me.
Answer me.	Remember me.

"Good morning," pronounced in the sweetest of tones, in an appropriate context, generates the force of the loudest of alarm clocks ringing in one's ears, whose imperative intention is so strong that the hearer literally jumps out of bed without any explicit mention of a grammatical verb. Ssh... and uh-uh... are examples of imperative formulas which do not belong to the grammatical system of the verb. The overt content and the social value of an utterance will be moving on two different levels in terms of conversational strategy. Verbal context must thus be understood as a situational context and not in a syntactic sense, for the notional intention will often not result in the semantic sum of its superficial parts.

How, then, does one finalize rules for a mood whose modality, like that master of disguise, the octopus, can hide behind so many forms? Vendryes writes:

"...the imperative belongs only partially to

language in its logical sense. It is the active mood of language and can be expressed by a cry." (1925, p. 121)

Since the imperative must maintain a permanent relationship with its context, we must move to that part of the embryonal utterance where the capacity to will is lodged, in order to understand that the imperative requires an intention to instigate a reaction in another person, even in ourselves in the case of soliloquies, where we are treated as a second person. By instigating action in others, the imperative perfectly demonstrates the interactive holistic quality of speech and that communication always depends on a response. In this sense, a close social parallel again exists with the interrogative network because both imply interaction with another person.

Although commands appear to evade validity tests since they are neither true nor false, their validity can be tested in the final outcome of the utterance, in its proof of perception. Thus the three components identified in the imperative process, occurring in a hierarchical pattern, are:

- 1) the energizing primary volitive capacity for intention, acting as a stimulus for:
- 2) the speaker's response, the holistic utterance. Excepting the past tense, it carries no restrictions as to word class, sentence construct, syntactic mood, or intonation pattern; and
- 3) the hearer's response which is the proof of reception stage. It is where the transmission of energy acts as a source of causality and a re-action occurs.

The initial conceptual or notional capacity leads into the secondary instrumental component which, in turn, depends on the desired final outcome, acting as a polar attraction signifying completion of the speech act.

The above schema follows a line of development in classification begun by Jespersen (1927) who categorized verbs according to those with an element of WILL, such as: "he must leave," and those without, such as: "he must have left." Austin (1962, Lecture VIII) further developed this basic distinction of plus or minus WILL into two great categories of linguistic acts: locutionary, that "say" something; and illocutionary, that "do" something. Searle (1969) then divided the latter into five categories, including the directives and the performative declarations: sentences permeated by an element of will.

Since these divisions are by function, and

not syntactical, any type of grammatical structure may fit so long as the element of a will for intention is present and the proper constraints are respected. Identical imperative-laden directives, therefore, may appear in the following guises:

- | | |
|---|---|
| 1- syntactic imperative - | SIT DOWN! |
| 2- interrogative | - Aren't you tired of standing? |
| 3- declarative | - I want you to sit down.
You must sit down.
He sits down (play direction) |
| 4- context-dependent sentences which contain the imperative intention | - (to a child in a theatre, coaxingly) "I have some candy." (where the semantic parts do not add up to its functional purpose without the socio-conceptual intention) |
| 5- imperative modality-bearing nouns | - Attention! (spoken in an auditorium)
John! (accompanied by suitable prosodic intonation). |
| 6- nouns with a determiner | - The sofa. (meaning: Go sit on the sofa.)
- This way. (meaning: Sit down in this area.) |
| 7. nominal adverbs with or without a determiner | - Over there./Here. (meaning: Go sit in a certain space.) |

Whatever the grammatical structure, all of the above sentences function as true, full-fledged imperative commands because the same underlying imperative intention "SIT DOWN" is common to each.

Thus we have the imperative infinitive stem designating volition, modal auxiliaries, lexical verbs (such as want, order, ask, request), and, in their appropriate context, generic nouns (Nurse! Waiter! Porter!), specific names, nouns with the definite article and adverbs all conveying the imperative intention.

From Lamb's stratificational point of view (1973), the speaker's intention, which is the

invariable feature at the basis of every imperative utterance, would be part of the conceptual or sememic level, whereas various morphological forms could appear at the morphemic level, depending on the single cases.

The imperative infinitive represents the simplest and most essential form of singular utterance both in English and in Italian, which are the only two languages considered in this study. All that is required is the basic verb root, without TO in English (Speak up!), without the final -re in Italian regular verbs (Parla!). No reference need be made to the subject or to a complement. While no overt auxiliary is needed, it may be posited that an underlying WILL fills that function slot.

The future tense, morphologically identical with the modal auxiliary WILL, is intimately connected with a WILL, that is, a volition, for an intention. This bond is further evident when we realize that the termination statement of a command is a future-tense reference. For example: SIT DOWN! would be stated terminally as: --- will sit down. A further example is the Army use of the future in its memorandum-type orders: "Private Jones will report at 18.00 hours" (Palmer 1984, p. 30). These help to clarify Sadock's (1977) statement concerning imperative sentences which express:

"a desire on the part of the speaker to prescribe some future behavior for the addressee." (p. 73)

Threats like SAY ONE WORD OF THIS AND YOU'RE A GONER, paraphrased as: DON'T TALK ABOUT THIS TO ANYONE, involve a non-specific future-tense category with strong imperative intentionality.

Significantly, the imperative verb is a non-finite form. By evading a time slot, the infinitive, signifying INFINITE, is non-confining. Perhaps owing to this potentiality "out of time" the evangelists preferred the imperative to report the Divine Word, which, in Italian and other romance languages, is "il Verbo," meaning "the verb." In the New Testament the imperative is the mood in which Christ communicates and performs miracles. We all remember:

Love your enemies.
Convert and believe.
Begone, Satan...
Repent.
Judge not, that you may not be judged.
Get up, Lazarus!

The Ten Commandments, although syntactical declarative sentences in English, are intentionally imperative:

Thou shalt not kill.

Thou shalt not covet....etc.

Fundamental to the network which the imperative governs is the capacity to exercise authority over another person.

Since we know that modal verbs express the inner attitudes of the speaker, is it not, then, logical to postulate that modal verbs are capable of containing implicit intention? As K. Blair (1984, p. 33) observes, each modal verb functions as though qualified by an IF-clause:

This should happen (IF certain conditions are met)
 " must " " " " " etc.

IF-clauses, in reality, are cause-effect statements just as imperatives are. If this is acknowledged, it implies that the imperative modality might well lie latent within every modal verb. Realizing this, we may better understand how widespread the imperative phenomenon can become.

Various degrees of imperative modality may be transmitted by an utterance. Depending on the force of the primary intention, a certain structure or lexical item will be chosen, accompanied by an interpretive tone of voice. With the involvement of different valences of power, the lexical item gains its force from an intention which places an obligation on another to react. The strength or directness of the imperative intention will influence its grammatical expression. A functional process occurs in which the role of syntax is entirely subordinate to the role of intention of meaning. By imposing their will over the hearer's mode of re-action, the imperative becomes the mood proper to those speaker-writers who wish to convince, teach, advise or instruct.

Furthermore, if pragmatics is a description of language intentionally used, then imperative modality is intimately bound with pragmatics, for purposeful writing will typically spring from some level of desire to produce further action. Instructions, for example, are given in the grammatical imperative because they are requests for action on the part of the reader and also are the easiest syntactic structure to understand, as well as the most economical in terms of time and space. Thus, the imperative may truly be said to correspond to what Jespersen (1941, p.6) considered "linguistic best": that which, with a minimum of effort by the speaker, produces a maximum of effect on the hearer. The imperative fully fits his definition of language as "purposeful activity." (p. 21)

Notwithstanding his omission of specific

mention of the imperative among the child's options of mood, naming only the declarative and the interrogative, certainly including it among his "and so on," (1975, p.50) Halliday's distinction between pragmatic manipulative language where a response is required and mathetic language which requires no response is applicable in a discussion of the imperative. He points to a similarity between the rising tone of Wh-questions and pragmatic language "presumably on the grounds that an answer is a form of response...and that demanding an answer is therefore a type of pragmatic function." (*Ibid.*, p.56) Pragmatic language and imperative constructions share a social relationship. Common imperative phrases such as: I want, will you, may I, Let's... require the same type of social context that is typical of pragmatic speech. Language is used as a tool in the specific contexts in order to transmit the individual pragmatic imperative meanings.

The implications are far-reaching should we go so far as to posit the declarative sentence as intrinsically imperative. In the declarative the speaker assumes his listener will pay attention to what he says. When we announce: "I'm going shopping this afternoon," we assume that our listener now knows we will be out at that time and he or she will act accordingly should the doorbell or phone ring. When a speaker declares "This is not a private matter," the intimation is that it is a public matter, signifying the intentionally imperative phrase: Take heed! Thus, by calling for the attention of the listener to something, the declarative function may be understood to contain imperative modality. The indicative primarily requests to be believed. In this connection, it is noteworthy that in Grice's studies on meaning and intention, he concludes that: "a degree of analogy between intending and believing has to be admitted." (1972, p. 13)

With time, that other neglected partner-in-mood, the subjunctive, may also largely be considered as a subset of the imperative. "Long live the King!" is really imploring God to "Keep the King going!" When the subjunctive is part of a dependent THAT-clause, following lexical verbs like demand, require, insist, recommend, suggest, or the phrase it is necessary that, it functions as a true imperative. In English, moreover, the two moods fuse morphologically into the same non-finite verb form. In Italian, the imperative and the subjunctive are often confused in the singular.

In view of all the above, the three basic sentence divisions: declarative, interrogative and

imperative, might plausibly all share one common underlying performative verb: GIVE. The basic paraphrase for the declarative could be:

GIVE me your attention.

The interrogative certainly always requests some sort of attention that calls for a reply, such as:

GIVE me an answer,

even though it be nonverbal. And the explicit imperative has always been a plain surface demand:

GIVE me a reaction.

I should like now to briefly consider three texts from a pragmatic functional point of view. The two political manuals of advice and one religious papal encyclical cover three time periods: Renaissance Italy in Machiavelli's The Prince (1513), 17th century England in the First Duke of Newcastle's Little Book (c.1659) to Charles II, and the present in Pope John Paul II's first encyclical (1979), "Redemptor Hominis".

Advice-giving naturally calls for exhortation-type formulas, for the advisor needs to enforce his propositions in order to encourage the listener to adopt them. The Pope is certainly advantaged by already possessing undisputed authority and by addressing himself to the Church as a world body, thereby producing weaker and more indirect imperative constructions than the others. The Pope is more apt to resort to indirect imperatives of the type:

The task requires resolute commitment...(1979, p.56)

Furthermore, increasing care must be taken...(op. cit., p.78)

Nonetheless, a common tactic that unifies these three documents is that they each adopt an empirical deductive approach. Whether positive or negative, the model examples contain a concluding indicator of the type "thus", "therefore", or "so", implicating some degree of finality. It is a master's strategy with which to express strong advice without resorting to the forthright grammatical imperative. A few examples with conclusive authoritarian function words followed by modal verbs as true instruments of imperative modality are:

Machiavelli (1947):

Hence a wise prince must adopt a 'certain policy.(p.29)

This opportunity, therefore, should not be allowed to pass, and Italy... must be allowed to behold her redeemer.(p.78)
(meaning: YOU be our prince.)

Newcastle (1988):

Therefore, your Majesty must keep up the
merchants.(p.95)

This point, therefore, ought to be very
carefully looked into.(p.103)

Therefore, your Majesty will encourage the
drainers as much as possible.(p.139)

Papal encyclical (op. cit.):

This is why the Church...must concentrate and
gather around...(p.72)

Nobody, therefore, can..., but everybody must...

We cannot however forget...(p.77)

(meaning: Remember.)

An advice-giving text is per se an authority structure. Consequently, the addressee will be assaulted throughout with imperatives of various forms. Newcastle's commands, directed to a King, are often toned down by the use of expressions of courtesy. An example is:

"So, if your Majesty pleases, speak to...And do
likewise for..."(op. cit., p.143)

where an if-clause of courtesy precedes the imperative and a codilla clause does away with the useless vacuous phrase of obsequiousness.

In the following example:

"the chief business is to master London, for
thus..."(Ibid., p.93)

the main clause conveys the imperative injunction with the full infinitive, while the dependent clause semantically functions as an if-structure which softens the authoritarian nature of the sentence.

Two of Machiavelli's examples of a declarative construction with imperative modality are:

"Under every aspect then, garrisons are useless,
and colonies are useful." (op. cit., p.5)

"So the safest way is either to extinguish them
or go and live in them."(Ibid., p.13)

All three advisors tend to call upon authority figures or documents and proven historic events to act as their imperative mouthpieces. Machiavelli cites examples from Greek and Roman history, Newcastle recalls British and French figures, while the Pope draws on passages from the Scriptures and Vatican Council II.

When we turn to the language classroom, it is easy to understand why, in general, so little attention is paid to the teaching of the imperative mood. Either the complexity of the mood function is not understood or it is avoided for lack of adequate knowledge of its function. One contemporary English grammar textbook writer (Morsberger, 1965) offers his students the following words to the wise:

"There are no grammatical difficulties connected

with the imperative, so don't worry about it." But there is difficulty in explaining functional content separately from syntactical content. In addition, the fact that the imperative depends so heavily on prosodic intonation, which is a domain which refuses to be reduced to a static phoneme, does not lend itself to a precise description.

There are three foreign language teaching strategies, nonetheless, that make abundant use of the syntactic imperative: Gattegno's Silent Way, Lozanov's Suggestopedia, and James Asher's Total Physical Response method, the latter, perhaps, to the point of exasperation. The kinesthetic sensorial system is literally drawn into play so that learning takes place entirely by means of commands which are used to manipulate body movements. Asher (1982) believes that the performance of actions in response to commands frees language learning from stress, thus facilitating linguistic comprehension and the internalization of grammatical structures. Asher and his followers, however, never stop to describe the imperative.

Such an open network will inevitably evade prediction, yet, be it a model for first or second language-learning, or for a model of universal pragmatic development, the imperative mood and its modality will need to be given its due consideration. The octopus-like imperative intention can no longer continue to hide behind innocent misleading grammatical labels. The imperative function needs to be further analyzed because it is part of the socio-cultural competence we all acquire from infancy.

A SUMMARY OF THE THREE COMPONENTS OF THE FUNCTIONAL IMPERATIVE PROCESS

	! A primary capacity for intention
	! °the initial mental action
	! :
IMPERATIVE PROCESS	! --The holistic utterance
	! °the linguistic instrument
	! :
	! :
	! --The proof of reception
	! °the re-action, positive or
	! negative, verbal or nonverbal

- Constraints:
- a) no past tense
 - a command cannot take place in the past
 - b) authority plausibility
 - a real execution-condition must exist (a bag lady could be full of imperative intentions but could rarely use the imperative, for the imperative outcome involves a real choice)
 - c) context-dependent
 - where context includes the situation in which the utterance occurs.

The use of the imperative is fundamentally a problem-solving skill that we acquire by degrees. An established social relationship requires that a decision be made by both speaker and hearer: the speaker plans the strategy and chooses the appropriate syntactical construct; the hearer decides whether to comply with the speaker's request/demand or not. A stimulus is sent out by the speaker which forces the hearer to respond in a conditioned manner.

A POLY-SYSTEMIC NETWORKSyntacticImperative:

Sit down!

Modality-bearingNouns/Names:

Fire! = Run/Come/Go

John! = Get up/Sit down

Nouns with determiners:The baby! = Look at/Go to/
Pick up

This way = Come/Go/Sit

Nominal adverbs:

Over there! = Go/Look/Sit

Here = Look/Sit

Lexical demands:

I want you to sit down.

Free utterances:

Shh! = Be quiet!

Uh-uh= Don't do that.

Subjunctive expressions:

I insist that you sit down.

Declaratives:I want you to
sit down.Rhetorical interrogatives:

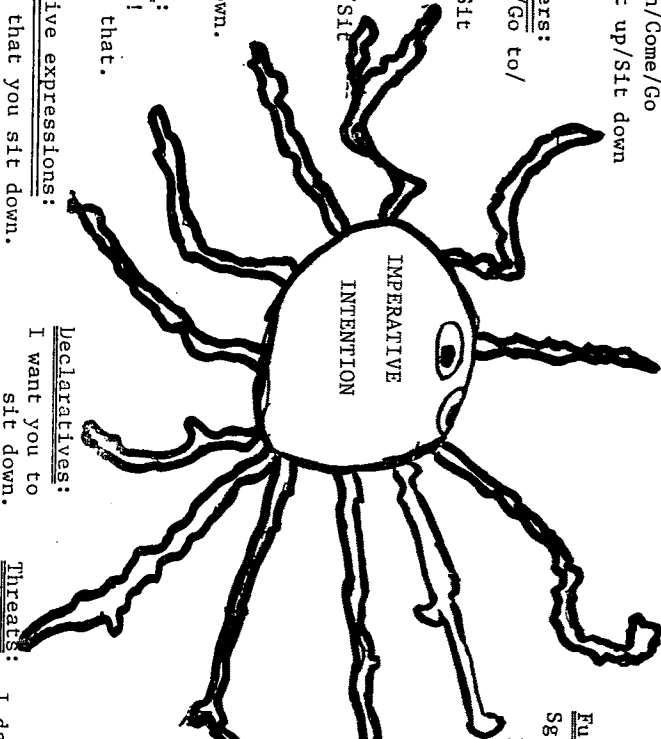
Aren't you tired of standing?

Chilly, isn't it? = Close the window

Future sentences:Sgt. Jones will report
at 6:00 A.M.I'll get you! (if you don't
do something) - this is
also a threatNodal verbsentences:You must sit down.
You may sit now.Bribe-ful sentences:

I have some candy.

I'll get you Alfy.

Declaratives:I want you to
sit down.Subjunctive expressions:

I insist that you sit down.

Free utterances:

Shh! = Be quiet!

Uh-uh= Don't do that.

Lexical demands:

I want you to sit down.

Nominal adverbs:

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Pick up

This way = Come/Go/Sit

REFERENCES

- ANZILOTTI, GLORIA ITALIANO. "The Rhetorical Question as an Indirect Speech Device in English and Italian" in The Canadian Modern Language Review/La Revue canadienne des langues vivantes, Vol. 38, No.2, Winter 1982, pp. 290-302.
- An English 'Prince': Newcastle's Machiavellian Political Guide to Charles II. Pisa: Giardini Editori, 1988.
- ASHER, JAMES J. Learning Another Language Through Actions. Los Gatos, California: Sky Oaks Productions, Inc., 2nd ed. 1982.
- AUSTIN, JOHN LANGSHAW. HOW TO DO THINGS WITH WORDS. The William James Lectures delivered at Harvard University in 1955. London, Oxford, New York: Oxford University Press, 1962.
- BACH, KENT & ROBERT M. HARNISH. Linguistic Communication and Speech Acts. Cambridge, Mass. and London: The MIT Press, 1979.
- BATES, ELIZABETH. Language and Context. New York, San Francisco, London: Academic Press, 1976.
- BERTSCHINGER, MAX. To Want--An Essay in Semantics. Bern: Verlag A. Francke Ag., 1941.
- BLAIR, KARIN. "Some Perspectives on the Tenses" in English Teaching Forum, Vol. XXII, No. 2, April 1984, pp. 32-35.
- BLOOMFIELD, MORTON & EINAR HAUGEN. Language as a Human Problem. Guildford & London: Lutterworth Press, 1975.
- BODMER, FREDERICK. The Loom of Language. London: George Allen & Unwin Ltd., 1946.
- BOLINGER, DWIGHT. Aspects of Language. 2nd ed. New York: Harcourt Brace Jovanovich, 1975.
- BROWN, ROGER. Psycholinguistics: Selected Papers. New York: The Free Press, A division of the Macmillan Co., 1970.
- CHARLESTON, BRITTA MARIAN. Studies on the Syntax of

- the English Verb. Bern: Verlag A. Francke Ag., 1941.
- GATTEGNO, CALEB. Teaching Foreign Languages in Schools: The Silent Way. Reading: Educational Explorers Ltd., 1963.
- GREENBERG, JOSEPH H.; ed. Universals of Language. Cambridge, Mass.: The MIT Press, 1963.
- GRICE, H.P. "Utterer's Meaning and Intentions" in The Philosophical Review, vol. 78, April 1969, pp. 147-177.
- "Intention and Uncertainty," 1971
Philosophical Lecture from The Proceedings of the British Academy, vol. LVII. Oxford: Oxford University Press, 1972.
- HALLIDAY, M.A.K. Learning How to Mean. London: Edward Arnold, 1975.
- HAYS, DAVID G. "Language and Interpersonal Relationships" in M. BLOOMFIELD and HAUGEN 1975.
- JAKOBSON, ROMAN. Selected Writings, STEPHAN RUDY, ed. Vol. 7, Studies in Linguistics and Philology, 1971-82. Berlin, New York, Amsterdam: Mouton Publishers, 1985.
- JESPERSEN, OTTO. A Modern English Grammar on Historical Principles. Parts III & V, Vol. 2. Heidelberg: Carl Winters Universitäts buchhandlung, 1927.
- Efficiency in Language Change.
Copenhagen: Ejnar Munksgaard, 1941.
- KATES, CAROL A. Pragmatics and Semantics. Ithaca & London: Cornell University Press, 1980.
- LAMB, SYDNEY M. Readings in Stratificational Linguistics. ADAM MAKKAI and DAVID G. LOCKWOOD eds. University, Alabama: The University of Alabama Press, 1973, chapter 11.
- LEVINSON, STEPHEN C. Pragmatics. Cambridge: Cambridge University Press, 1983.
- LOZANOV, G. Suggestology and Outlines of Suggestopedy. New York: Gordon & Breach, 1978.
- MACHIIVELLI, NICCOLO. The Prince. THOMAS G. BERGIN, ed. and translator. New York: Appleton-Century, 1947.
- MORSBERGER, ROBERT E. Commonsense Grammar and Style. New York: Thomas Y. Crowell Co., 1965.
- NEWCASTLE, WILLIAM CAVENDISH, "The Little Book" in S. ARTHUR STRONG, A Catalogue of Letters and Other Historical Documents Exhibited in the Library at Welbeck. London: John Murray, 1903, pp. 173-236.
- "The Little Book" in G. ANZILOTTI, 1988, pp. 81-184.
- PALMER, F.R. Mood and Modality. Cambridge, London &

- New York: Cambridge University Press, 1986.
- POPE JOHN PAUL II. First Encyclical Letter: Redemptor Hominis, March 4, 1979. Washington, D.C.: U.S. Catholic Conference Publications Office.
- ROMIJN ELIZABETH and CONTEE SEELY. Live Action English for Foreign Students. 7th ed. San Francisco, Calif.: Alemany Press, 1982.
- SADOCK, JERROLD. "Aspects of Linguistic Pragmatics" in Proceedings of the Texas Conference on Performatives, Presepositions, and Implicatures edited by A. ROGERS, B. WALL, AND J.P. MURPHY. Arlington, Va.: Center for Applied Linguistics, 1977, pp. 67-78.
- SEARLE, JOHN R. Intentionality: An Essay in the Philosophy of Mind. Cambridge: Cambridge University Press, 1983.
- Speech Acts: An Essay in the Philosophy of Language. Cambridge: At the University Press, 1969.
- SEBEOK, THOMAS A., ed. Style in Language. New York & London: The Massachusetts Institute of Technology & John Wiley & Sons, Inc., 1960.
- VENDRYES, JOSEPH. Language, A Linguistic Introduction to History. Translated from the French by Paul Radin. London: Kegan Paul, Trench, Trubner & Co., Ltd., New York: Alfred A. Knopf, 1925.
- WANNER, ERIC. "Do We Understand Sentences from the Outside-In or from the Inside-Out?" in BLOOMFIELD and HAUGEN 1975.
- WIDDOWSON, H.G. Learning Purpose and Language Use. Oxford: Oxford University Press, 1983.
- WILKINS, D.A. Notional Syllabuses. London: Oxford University Press, 1976.

MORPHOSYNTACTIC DERIVATION IN THE LEXICON

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0. Introduction

The observation, particularly in agglutinating languages, that the affix build-up in complex verb forms coincides with the order of application of certain syntactic rules has generated differing accounts. Baker (1985) calls this correspondence the Mirror Principle. He accounts for this phenomenon by treating the morphology and syntax of processes such as passivization, causativization, reflexivization, etc. as two aspects of a single process.¹ He argues that to unify morphology and grammatical function-changing rules (GF-rules), and thus explain the Mirror Principle, only one component is involved. And between at least two theoretically possible views, he considers the syntax component, rather than the lexicon, as the appropriate place for these morphosyntactic rules.

Following Grimshaw (1986), this paper supports the view of explaining this morphological and syntactic correlation in terms of the theory of word structure and the notion "head of a word" which was first proposed by Williams (1981) and which was later more fully articulated by Di Sciullo and Williams (1987). It will show that affixes as heads of words trigger morphosyntactic changes via lexical derivation stated in the lexicon.² These word structure rules reflect the changes not only in word forms but also in argument structure, voice and case marking and other semantic feature specifications, these being part of the information specified in the lexical items. Thus, they will be referred to as morphosyntactic rules. It will also show that other morphological rules having a common domain, i.e. words, as morphosyntactic rules, can be unified in the lexicon and, thus, achieve greater simplification in the grammar. Illustrative examples will be drawn from Tagalog, a Philippine language, and the types of verbs to be treated are the objective and active voice of non-causative and causative verbs as well as reciprocal verbs.

1. Baker's Mirror Principle and its Explanation

Baker draws from subject-verb agreement, causativization, reflexivization, and the passive and applicative constructions in various languages to illustrate the Mirror Principle. He cites the following sentences from Chamorro to support the correspondence between the subject agreement morpheme, the passive and the causative stems (1985:374):

- (1)a. Para#u#fan-s-in-aolak i famagu'un gi as tata-n-niha
 irr-1sS-pl-pass-spank the children obl father-their
 'The children are going to be spanked by their father.'
 b. Hu#na'-fan-otchu siha
 1sS-caus-pl-eat them
 'I made them eat.'

It will be observed that the subject agreement marker fan- occurs in (1.a) preceding a passive marked verb stem, s-in-aolak, implying that passivization occurs before subject-verb agreement is registered. In (1.b), the causative affix na'- occurs preceding the agreement morpheme fan- indicating that the verb stem otchu agrees with its corresponding subject siha before the stem is causativized. Thus, Baker concludes that the order of affixes directly reflects the order of application of the morphosyntactic rules involved in passivization, agreement, and causativization. Following a syntactic position, he states that these GF-rules operate in the syntax after lexical combination. This view predicts that with lexical insertion occurring before GF-rules apply, differences in insertion between simple verbs and verbs that have undergone a GF-rule change should be possible.

The crucial evidence Baker provides in support of placing these morphosyntactic rules in the syntax component comes from Chi-Mwi:ni, a Bantu language. The relevant sentences below are supposed to show the interaction between causatives and reflexives:

- (2)a. Mi m-phik-ish-iz-e ru:hu-y-a cha:kuja
 I 1sS-cook-caus-aspect myself food
 'I made myself cook food.'
 b. Mi ni-m-big-ish-iz-e mwa:na ru:hu-y-e
 I 1sS-3s0-hit-caus-asp child himself
 'I made the child hit himself.'
 c. *Mi ni-m-big-ish-iz-e Ali ru:hu-y-a
 I 1sS-3s0-hit-caus-asp myself
 'I made Ali hit myself.'

In (2.a), as is expected, the surface direct object reflexive has the surface subject as its antecedent, whereas (2.c) is predictably ungrammatical because the secondary direct object reflexive in the embedded clause has the surface subject of the main clause as its antecedent which is disallowed by Principle A of the Binding Theory (Chomsky, 1981:188f.). In (2.b), however, with an identical morphological causative verb, the secondary object reflexive takes the surface direct object as its antecedent. Baker points out that the explanation for this behaviour is that "before causativization takes place, the reflexive is indeed the direct object of the (root) verb, and its antecedent is indeed the subject as required" (1985:410). He states that this is allowed by the syntactic view since lexical insertion of the reflexive and its antecedent would be an independent combination from the other elements, and its functions may then later change as a result of the application of causativization.

2. Analysis of Baker's Syntactic Account

Analyzing (1.a) and (1.b) above, we observe that based on the order of morphemes found attached from right to left of the verb stem, the morphosyntactic rules applied in the following order: (a) passivization, (b) subject-verb agreement, (when verb is intransitive), and (c) causativization. With the current transformational treatment of passivization, the passive form of the verb serves as the trigger for NP-object movement to the empty NP-subject position. What this suggests is that it is the form of the passive verb that provides the 'new' argument structure or subcategorization features that must be projected in syntactic structure. With respect to subject-verb agreement, it may be argued, considering a lexicon that allows both inflection and derivation to occur therein, that the two forms of the passive are the singular s-in-aolak and the plural fan-s-in-aolak, the former requiring a cooccurring singular NP subject and the latter, a plural one. The syntactic rule of well-formedness can require that both NP-subject and passive Verb be compatible in terms of their number feature. Given this condition, it is not simply polemical to say that the formation of the plural passive verb does not in fact depend strictly upon the subject-verb agreement rule triggering it.

In the case of (1.b), it is significant to note that the plural form of the verb stem, fan-otchu, signals its compatibility with the plural pronoun siha, its supposed underlying subject. Assuming a biclausal structure as

the underlying representation of this causative construction, the lexical items under the preterminal nodes would include an affix as the higher verb. With causativization applying next, the embedded verb stem has to be fused with the causative affix, with the concomitant change of grammatical function of the embedded subject to that of direct object of the main causative verb. The disadvantage of this analysis is the inevitable modification of the first lexical insertion. First, the grammar has to admit of certain affixes as higher verbs. Unlike other higher verbs this affix would require a unique feature specification in order to properly trigger the necessary morphologization. Second, it will also entail a substitution of lexical items in terms of case-marked nominals, rendering the first lexical insertion superfluous. Certainly, to meet the first requirement, some morphological rules have to be formulated. Such an added subcomponent in the syntax can be judged as a complication in the grammar, if not a duplication of function of word structure rules in the lexicon.

Turning now to his crucial evidence given in (2), Baker rather triumphantly showed that in (2.b) the reflexive-antecedent relation in the embedded clause is established before causativization. Taking a closer look at (2.a), however, we find that reflexivization has to take place after causativization. Given its underlying structure, the initial lexical item for the subject of the embedded clause must be a non-reflexive pronoun, and it is only after causativization, that this subject-NP can become a direct object-NP and thus, be substituted with a reflexive pronoun. Can a set of rules be ordered one way in one cycle and then another way in the next? This seeming contradiction vanishes when reflexivization is treated as a syntacto-semantic interpretation rule that determines which NP preceding the reflexive can be properly construed as its antecedent. Evidently, it does not seem to matter whether the item involved is a subject in D-structure or a direct object in S-structure or even an object of the Preposition in either D- or S-structure. If this is the case, then we find the argument provided by the supposed interaction between reflexivization and causativization unconvincing.

3. Arguments for Morphosyntactic Derivation in the Lexicon

Three arguments will be presented to justify the alternative of placing morphosyntactic derivation in the lexicon instead of in the syntax component. Most important of these is Grimshaw's suggestion that to explain the Mirror Principle "the linked ordering of

affixation and morphosyntax follows from the theory of word structure and in particular the theory of heads." (1986:747) The two other supporting arguments are derivatives from the first in that (i) complex forms of verbs like simple verbs are specified, among others, with syntactic and semantic features; particularly relevant to the point under discussion are various changes in argument structures as well as voice and case marking properties; and (ii) if the lexicon is the repository of all words in the language, then the most logical place for accounting for morphosyntactically derived words is the lexicon.

3.1 The Notion 'Head of a Word'

Williams' theory of word structure (1981; Di Sciullo and Williams, 1987) relies on the notion 'head'. Williams assumes that words have heads and that an affix can become the head of the word it is attached to. He observes that generally the suffix determines the category of a word of which it is a part. Thus, the suffix must have its own properties, both syntactic and semantic, which it passes on or percolates to the whole derived word. On the other hand, a prefix will not usually change the category of the base, in which case the prefix is a non-head and is not specified for any lexical category. The righthand base to which the prefix is attached functions as the head since its category is what percolates to the new word. The semantic property of the prefix, however, is registered in the derived verb as its contribution to the word's total meaning. One interesting morphological structure common to agglutinating languages is the potential of affixed words to undergo further affixation, e.g. control >--> controllable >--> controllability. Given a sequence of affixes, the last affix attached to an already complex form must be the head of the word, overriding the previous affix or affixes. Based on the theory of heads, only the grammatical properties of the head of the word are properties of the word itself, and only properties of the word are accessible to further morphological or syntactic analysis. The head, being the pivot in a given word, can trigger changes in the inherited argument structure, subcategorization, and case marking as well as the semantic features of a given base.

At this point, we will see how this notion 'head of a word' applies to Tagalog complex verbs. Tagalog is one language which does not consistently obey Williams' Righthand Head Rule (1981:248). Although there are suffixes that act as heads, there are also some prefixes, both inflectional and derivational, which

serve the same function of head. Due to space limitations, only two types of complex verbs will be treated here, namely, (i) objective (obj) and active (act) types of non-causative and causative verbs, and (ii) reciprocal verbs.

From an ergative analysis perspective, the two sentences below show a regular transitive construction and a corresponding intransitive, which in Relational Grammar has been referred to as Antipassive.³

- (3)a. lu-lutu?-in nang nanay ang manok
asp-cook-obj Erg mother Abs chicken
'Mother will cook the chicken.'
b. mag-lu-lutu? ang nanay (nang manok)
act-asp-cook Abs mother Obl chicken
'Mother will cook (chicken).'

In (3.a), the verb has the objective marker -in and the agent argument is marked with the Erg(ative) case particle and the object argument is marked with the Abs(olutive). Compared with (3.b), the same root with the active prefix mag- (analyzed simply as the active voice marker for our purposes)⁴, cooccurs with the agent argument marked with the Abs case particle and the object, if specified, with the Obl(ique). The objective voice suffix -in and the active voice prefix mag- both predict which argument is marked Abs.⁵ This strongly suggests that these affixes carry some properties that become properties of the word they are attached to, i.e. the Abs marking of the specified object or agent which arguments are identified as features of the base lutu?. This means that given a verb base with an agent and an object argument, when it is marked with the suffix -in, the object argument of X will be marked Abs and its cooccurring agent argument, Erg. Thus, ignoring aspectual marking, the form of the construction will be:

- (4) X-in nang Y ang Z
 [+V Erg AGT Abs OBJ
 +obj
 +[+AGT, Erg]
 (+[+OBJ, Abs])]

The same base when prefixed with mag- will pick out the agent to be marked Abs, and allow the object marked Obl to occur optionally. Hence, the structure is:

- (5) mag-X ang Y (nang Z)
 [+V Abs AGT Obl OBJ
 +act
 +[+AGT, Abs]
 (+[+OBJ, Obl])]

If X then is a class of roots with specified argument features, its formation with -in or mag- provides the required Abs case marking for one of its cooccurring arguments. Note that in both (4) and (5), interchanging the case markers of the arguments will result in ungrammatical constructions. To illustrate mag- with a one argument base, we can draw from both native and borrowed bases as follows:

- (6) mag-sa-sayaw ang bata?
 act-asp-dance Abs child
 'The child will dance.'
- (7) mag-re-retire na ang nanay ko
 act-asp- already ABS mother my
 'My mother will retire soon.'

Note that a mag- verb can be productively formed with borrowed words from either Verb or Noun classes, and the meaning associated with the latter has to do with the inherent meaning of what one normally does with the particular Noun involved. For example:

- (8)a. mag-laso ka
 act-ribbon Abs, you
 'Put on/wear a ribbon.'
- b. mag-dessert tayo
 act- Abs, we
 'Let's go eat some dessert.'

In this manner, the words formed with mag- carry the grammatical properties associated with the feature [+act], Abs case marking of the agent (or its alternant) argument and the corresponding interpretation of acting out what the base suggests is normally done with it, if it is a Noun.

All this points to the important role that these affix heads play in imposing grammatical and semantic restrictions on the simple non-causative verbs they form. Now let us turn to the more complex causative verbs and determine the interaction between the causative and the voice affixes. Consider the following sentences:

- (9) a. pa-ka-kain-in nang nanay ang bata?
 caus-asp-eat-obj Erg mother Abs child
 'Mother will feed the child/Mother will have the child eat.'
- b. mag-pa-pa-kain ang nanay (nang bata?)
 act-asp-caus-eat Abs mother Obl child
 'Mother will feed a child./Mother will do some feeding of a child.'

Semantically, kain 'eat' takes an agent and an object argument. Attached with -in, what is to be eaten will take the Abs, and the eater will be marked Erg. However, with a causative stem indicated by the prefix pa-, there is a consequent reorganization of these arguments, such that the stem derivation rule may be stated as follows:

- (10) kain 'eat' >--> pa-kain 'cause eat'
- | | |
|-------------------|----------------------|
| +AGT _i | +V |
| +OBJ _j | +caus |
| | +AGT |
| | +OBJ _i |
| | (+OBJ _j) |

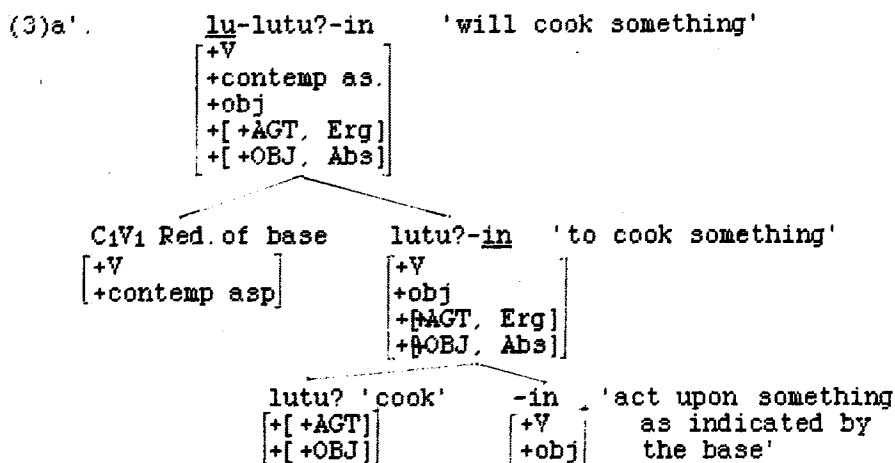
As an outcome of the affixation, a new agent argument who does the causation is introduced and the former agent argument of the root now plays the role of the object of the causative verb (to be referred to as primary object) while the former object of the root becomes a secondary object argument of the causative verb, i.e. something implicated in the action being caused. The relationship between the specified agent of the root and the primary object of the causative stem is captured by coindexing. The pa- prefix, therefore, can be conceived of as possessing these grammatical properties which get assigned to the derived stem through the feature [+caus].

What we see in both (9.a) and (9.b) is the causative stem pa-kain 'cause eat or feed'. With the formation of the objective in (9.a), we predict the Abs marking of its object argument (the former agent in the non-causative root) and likewise the Erg marking of its agent and the Obl marking of its secondary object which may optionally occur.⁶ In (9.b), the usual prediction that the mag- prefix makes, i.e. marking its agent Abs and its optional object Obl, is borne out.

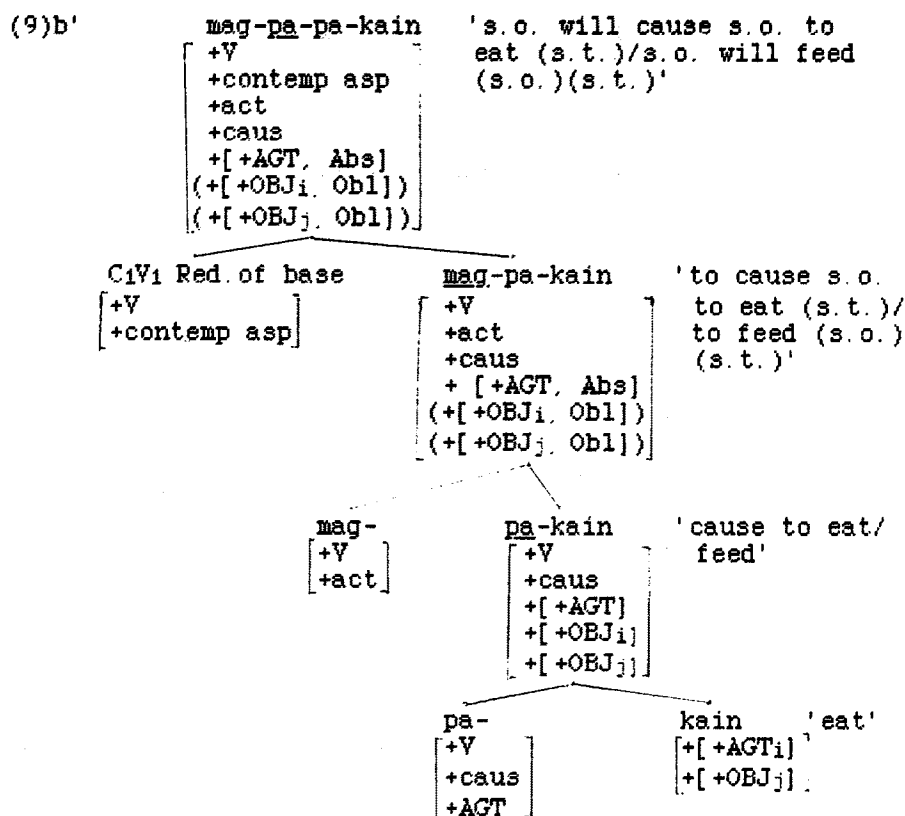
It is significant to compare the aspectual forms of the verbs in (9.a) and (9.b) because while an alternate form to (9.a) exists, whereby the CV reduplicated to mark aspect is the causative pa-, instead of the first CV of the root, thus, pa-pa-kain-in, a mag- form analogous to (9.a), mag-pa-ka-kain is impossible. What is shown here is that where the causative affix is not overridden by another prefix, it maintains the integrity of the root, such that its first CV may be reduplicated to indicate futurity or contemplated aspect. With mag-, however, obviously supplanting the pa- of the causative stem, the affix pa- becomes inextricably linked to the stem. Thus, much like in (3.b), the pa- functions as the first CV that gets reduplicated. In these examples, it is

relevant to note that the ordering of the different categories of affixes and the placement of affixes belonging to the same category e.g. caus-asp-eat-obj in (9.a) and act-asp-caus-eat in (9.b) cannot be understood as a simple matter of reflecting the ordering of syntactic rules. Firstly, the two forms will require different ordering, and secondly, the placement of the voice affix is also different in each case. Obviously, putting these morphosyntactic rules, along with other inflections, in the syntax component will entail a complex morphological mechanism, which to a large extent already exists in the lexicon.

In sum, the structures of a non-causative and a causative verb may be shown below depicting the head of the word, underlined at each level of derivation and showing its corresponding properties relevant to the question:



Starting from the combination of the root⁷ and the voice suffix -in, the resulting form inherits the argument frame specified in the root but modified by the feature [+obj] from the suffix head, effecting the appropriate case marking. Given this infinitive voice-marked form, the aspectual form may now be 'derived' in the next level. Each type of voice-marked verb has its own set of rules for forming the aspectual forms. The reduplicated C1V1 of the stem is the inflectional prefix head which endows the next higher verb form with the feature contemplated aspect.



The causative verb structure above differs from the non-causative verb in (3.a') essentially in the creation of the causative stem consisting of the prefix head pa- plus the root prior to voice affixation. At every level of structure, we see that the features of the head of the word indeed percolate to the derived word. But, along with these, the argument structure of the non-head constituent is also carried over to the derived form, except that it may be changed or reanalyzed depending on the features of the head.

3.2 Other Morphosyntactic Rules Affecting Argument Structure

In the preceding section, it has been shown that voice marking affixes -in and mag- affect the case marking of a particular argument and that the causative affix pa- introduces a 'new' agent argument. If causativization is an instance of an addition of an argument, with consequent changes in the argument structure inherited from the base, the same process can

be observed in transitivization of an intransitive verb. For example, compare the following sentences:⁸

- (11)a. b-um-agsak ang manga libro
asp+act-fall Abs pl mkr book
'The books fell.'
b. i-b-in-agsak nang bata ang manga libro
obj-asp-drop Erg child Abs pl mkr book
'The child dropped the books.'

Here we have a case of the root bagsak 'fall' which in (11.a) is a one-argument verb, but a two-argument one in (11.b). Semantically, the latter is much like a causative verb in introducing an agent but without the benefit of an affix. So, the question is how are these two related forms to be accounted for? Lexically, there is a class of locomotion, (e.g. pasok 'enter', balik 'return', higa? 'lie down', etc.), and simple intransitive verbs, (e.g. bukas 'open', takbo 'run', tayo? 'stand', etc.) which can be transitivized generally following the derivation rule below stated generally as:

- (12) V >--> V
+[+OBJ_i] [[+AGT]
[+[+OBJ_i]]]

Compared with an intransitive verb which is causativized such as:

- (13)a. t-um-akbo ang kotse
asp+act-run Abs car
'The car ran.'
b. pa-ta-takbuh-in nang nanay ang kotse
cause-asp-run-obj Erg mother Abs car
'Mother will make the car run.'

we can better capture the general process of introducing an agent argument in certain argument structures if we treat both (11) and (13) as well as (9) to be similar instances of morphosyntactic derivation, with or without corresponding affixes involved. Only a lexical approach can unify these two similar processes of transitivization and causativization with the least complication to the grammar.

In contrast to argument addition, other related types of morphosyntactic processes are argument deletion and argument incorporation. Let us take a reciprocal intransitive verb to illustrate the latter:

- (14)a. ha-hampas-in nang babai ang lalaki
 asp-hit-obj Erg girl Abs boy
 'The girl will hit the boy.'
 b. mag-ha-hampas-an ang babai at ang lalaki/sila
 act-asp-hit-recip Abs girl and Abs boy/Abs.they
 'The girl and the boy/They will hit each other.'

A transitive verb form as in (14.a) can be related to a reciprocal form as in (14.b) by suffixing the root, hampas 'hit', with the reciprocal marker -an with the consequent incorporation of the object argument into the agent either in the form of coordination or pronominalization, both forms being plural. Another grammatical requirement of this reciprocal form is its occurrence only in the active voice form, hence, the affixation of mag-. The derivation rule may be stated broadly as follows with the features under the new form triggered by the reciprocal suffix:

- (15) X >--> [X + -an]
 $\left[\begin{array}{l} +V \\ +tr \\ +[+AGT_i, x] \\ +[+OBJ_j, x] \end{array} \right]$ $\left[\begin{array}{l} +V \\ +recip \\ +[+AGT_i+j, pl] \\ mag- + ____ \end{array} \right]$

Considering the various requirements of the reciprocal verbs in terms of both argument structures and voice affix, it will be rather counterintuitive for a syntactic rule to impose restrictions on morphological constituency if this morphosyntactic process is accounted for in the syntax component. For the sake of consistency and simplicity of account, the better place for all these morphosyntactic rules is in the lexicon, since the other derivation rules already allow the proper specification of both syntactic and morphological features required by the classes of items involved.

3.3 Morphosyntactic Derivation as Lexical Derivation

The final argument which I believe supports the lexicalist view of accounting for morphosyntactic derivations in the lexicon is a logical one. In a theory of grammar in which the lexicon component is the repository of all existing and possible words which can be chosen for lexical insertion, all words - simple and complex, underived and derived - must be accounted for in the lexicon. The derived forms, simple or complex, are accounted for by means of lexical derivation rules which establish particular types of relationships between lexical items that share a common base and certain other syntactic and semantic features. Some

familiar lexical derivations such as Verbs to Nouns take the following forms in Tagalog:

- (16)a. V >--> N[V + -an] 'thing or place to do V'
- | | | | |
|-------|-----------|---------|---------------------------------|
| upu? | 'sit' | upu?an | 'chair' |
| inum | 'drink' | inuman | 'receptacle/place for drinking' |
| lutu? | 'cook' | lutu?an | 'pot/kitchen' |
| labah | 'launder' | labahan | 'laundry basin/laundry room' |
- b. V >--> N[pag- + Vstem] 'the act of Ving'
- [um-+__]
- | | | |
|--------|--------|------------|
| talon | 'jump' | pag-talon |
| takbo | 'run' | pag-takbo |
| bagsak | 'fall' | pag-bagsak |
- c. V >--> N[pag- + Red.C1V1 + Vstem] 'the act of Ving'
- [mag-+__]
- | | | |
|----------|-------------|-----------------|
| lutu? | 'cook' | pag-lu-lutu? |
| bagsak | 'drop' | pag-ba-bagsak |
| pa-kain | 'cause eat' | pag-pa-pa-kain |
| pa-takbo | 'cause run' | pag-pa-pa-takbo |

The derived forms are quite systematically related to the underived simple forms in terms of form and syntactic features. In much the same way, the relations established between objective and active, non-causative and causative, non-causative and reciprocal may be said to follow the same principles. The rules change syntactically relevant features of lexical items. The main difference between them is the extent to which syntactic features are modified; the similarity lies in the involvement of syntactic features, from general syntactic categories to argument structure, subcategorization, voice marking, case marking and the like.

While it is not the purpose of this paper to make explicit the distinction between inflection and derivation, it has assumed, as in some recent literature (Di Sciullo and Williams, 1987:69; Williams, 1981:246) that both types of affixation occur in the lexicon because they are morphological. In both cases, the affix triggers a feature change and whether the change is minimal or extensive, the outcome of the process is still a different word with specified features to which syntactic rules may refer.

If it is admitted that morphological rules, that is.

rules that account for the structure of words and lexical relations, are a subcomponent of the lexicon, and these rules are capable of changing features of all kinds, there is sound reason to believe that the morphosyntactic derivations under discussion are basically no different from other morphological rules. Whether the changes in features resulting from a given morphological or lexical rule are syntactic, semantic, morphological or any combination of these, the important generalization to be made is that each rule accounts for a different WORD, the proper domain of the lexicon.

4. Conclusion

Since the two crucial arguments given by Baker for favouring a syntactic view to explain the Mirror Principle, namely, subject-verb agreement and reflexive-antecedent relations, have been shown not to be compelling, the alternative lexicalist view is proposed to be the more plausible contender for languages for which the Mirror Principle applies. The basic argument rests on the strength of the notion 'head of a word'; certain affixes as heads have syntactic properties which percolate to the whole derived word. If these morphological elements can change syntactically relevant features of lexical items, then these morphosyntactic derivations are much like other lexical derivations in terms of effecting feature modification. In view of this similarity of systematic operations in both types of derivation, it is argued that there will be more unity and simplicity achieved in the total grammar if morphosyntactic derivations are stated in the lexicon along with other morphological rules.

NOTES

¹ In Relational Grammar, this correspondence between affixes in a given sequence and syntactic levels, each representing the application of a relation-changing rule, follows from what Gerds (1988:305) calls the Satellite Principle. Each affix is considered a side-effect of a relation-changing rule.

² For lexical derivation rules in Tagalog with consequent changes in syntactic arguments, see De Guzman, 1978.

³ For a fuller discussion of Antipassive in Philippine languages, see Gerds, 1988 and De Guzman, 1988.

⁴ In De Guzman (1978), the affix mag- is reanalyzed as consisting of the active voice marker m- (an allomorph of um-) plus the derivational affix pag-. A derived pag- verb stem can take other voice affixes such as benefactive, i-paglutu? 'to cook for s.o.', and locative, paglutu?an 'to cook s.t. in'.

5 In the literature, this Abs marked NP has been variously referred to as the focussed or topic nominal.

6 The examples give the full specification of the argument frame and case marking. This may be simplified by stating Redundancy Rules of the form: [+obj] ---> +[+OBJ, Abs].

7 Roots are left unmarked for lexical category for they have the potential of functioning as either Verb or Noun.

8 The completed aspect is chosen here because this is the form that simultaneously reveals the voice marker um- which the root takes. This is also the infinitive form of the verb.

REFERENCES

- Baker, Mark. 1985. "The Mirror Principle and Morphosyntactic Explanation," Linguistic Inquiry 16:373-415.
- Chomsky, Noam. 1981. Lectures on Government and Binding. Dordrecht: Foris Publications.
- De Guzman, Videa P. 1978. Syntactic Derivation of Tagalog Verbs. Oceanic Linguistics Special Publication No. 16. Honolulu: The University Press of Hawaii.
- _____. 1988. "Ergative Analysis for Philippine Languages: An Analysis." In Richard McGinn (ed.), Studies in Austronesian Linguistics. Ohio University Monographs in International Studies, Southeast Asia Series, No. 76. Athens: Ohio University Press. pp. 323-345.
- Di Sciullo, A.M. and E. Williams. 1987. On the Definition of Word. Cambridge: The MIT Press.
- Gerds, Donna. 1988. "Antipassives and Causatives in Ilokano: Evidence for an Ergative Analysis." In Richard McGinn (ed.), Studies in Austronesian Linguistics. Ohio University Monographs in International Studies, Southeast Asia Series, No. 76. Athens: Ohio University Press. pp. 295-321.
- Grimshaw, Jane. 1986. "A Morphosyntactic Explanation for the Mirror Principle," Linguistic Inquiry 17:745-749.
- Williams, Edwin. 1981. "On the Notions 'Lexically Related' and 'Head of a Word'," Linguistic Inquiry 12:245-274.

WORD ORDER IN SIERRA POPOLUCA

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0. Introduction.¹

Bernard Comrie² suggests for some languages it is difficult to establish a dominant order of clause constituents. This is certainly true for Sierra Popoloca (SP). Any permutation of Subject, Verb, and Object will yield a grammatical sentence.³ In SP, as in many other languages, the verb by itself is a complete clause. The verb includes obligatory person markers to indicate the participants involved. Professor Fred Householder once suggested to me that some languages were like English in that there is a subject or topic set forth, and then some comment or discussion about that topic; these, of course, corresponding to subject and predicate. Other languages, like Sierra Popoloca, where all relevant persons involved are marked in the verb, set forth an observation (the verb) and then various nouns and adverbs can be added to make clear the details or to specify the situation more clearly. Such languages might be referred to as observation-detail languages, while the first group as subject-predicate languages.

If, as in SP, all participants are either marked or implied in the verb, there is no reason they should also be indicated at the level of clause as well once an identification has been made. And in SP they are frequently omitted at the clause level.

1 Sierra Popoloca (SP) is spoken in the state of Veracruz, Mexico by approximately 20,000 to 25,000 speakers. The data on which this study was based were collected in the late forties by the author in the village of Ocotál Chico. The text material used was transcribed by hand as dictated by several men including Fermin Gutierrez, Pantaleon Gutierrez, and Miguel Ramirez.

2 1981: *Language Universals and Linguistic Typology*; Chicago: University of Chicago Press, p. 82

3 One day while working with a teenage young man, I decided to see if there was any way one could tell subject from object with a transitive verb when both were 3rd person. I used the sentence *tahpi imatspa tʔaka* 'the hawk catches the chick' (*tahpi* 'hawk', *tʔaka* 'chick', *i-mats-pa* '3:3-grab-incomplete'). No matter in what order these words were spoken, the meaning was always the same.

A second incident occurred sometime later. As I was sitting with a group of men, a young man ran up to the group and said *pēto itʔuh šiwan* (*pēto* 'Peter', *šiwan* 'John' *i-tuh* '3:3-shoot'). One man immediately responded, *ī tukʔā* 'Who got shot?'

SP has neither case markers nor does the order of constituents provide any grammatical information. The hearer interprets the sentence based on the immediate linguistic context or on his knowledge of the situation referred to or of the world in general. In the sentence about the chick and the hawk, the meaning is clear no matter what order the constituents occur in; chicks do not catch hawks. Of course it is possible to say 'the chick catches the hawk' but not with an ordinary transitive sentence. It would require a kind of double clause:

- (1) *matstā tahpi, mātsoy²pa tʷaka*
'the hawk was caught, the chick did the catching'

In the sentence about the shooting, since either person could have done the shooting, either interpretation is possible and the questioner needed to resolve the ambiguity.

Although it is possible within a single clause to have several nominals (noun, pronoun or clause) associated with one verb, SP speakers apparently prefer to speak with few accompanying nominals (frequently with none). Verbs are obligatorily inflected for person of subject and object. Additional affixes may be added to either to add or delete persons implied in the verb.

In a text count of 1,000 clauses with active verbs, 43% had no associated noun in the same clause. This figure includes both intransitive and transitive verbs. Clauses having verbs with one associated noun comprised 51% of the sample, while only 6% had two associated nouns. If we consider only clauses with transitive verbs: 31% had no associated noun, 40% had one associated noun which turned out to be the object, 14% had one associated noun which turned out to be the subject, and 12% had two nouns (one subject and one object or indirect object). The remaining 3% had two associated nouns both of which were objects (i.e. direct and indirect objects).

The determination of which nominal "turned out to be" subject and which object when both are 3rd person depends upon the linguistic context generally, although a few cases were completely ambiguous. For example, I found the following sentence in one of the stories I was working on during this study: *iñʌ²ma²ypa iyōmo* (i- 3:3, *ñʌ²ma²y* say to, -*pa* Incomplete; i-3POS, *yōmo* 'woman, wife'). In one place in the story it must be interpreted as 'He says to his wife.' (i.e. the noun is functioning as the object) and in another place as 'His wife says to him.' (i.e. the noun is functioning as subject). But in both cases 'the man' who is the central character of the story is left out.

SP speakers are apparently able to tolerate a high degree of possible ambiguity. However, since in most of the sentences where there is possible ambiguity, the ambiguity is resolved by the linguistic context (as in the illustration of *iñʌ²ma²ypa iyōmo*), the actual number of unresolved ambiguous statements is quite low. A speaker also may assist the hearer by resorting to intransitive or passive sentences.

1. Word order in clauses.

As was mentioned above, the order of meaningful constituents in clauses is relatively free. However, some arrangements seem to be more natural than others and are observed with greater frequency.

1.1. Interrogative clauses.

Question words normally occur first in the clause.

- | | | |
|-----|---------------------------|------------------------|
| (2) | <i>hūtʷ miñakpa</i> | 'Where are you going?' |
| (3) | <i>tʷiiga poypa pētoħ</i> | 'Why did Peter run?' |
| (4) | <i>ī oy miʷaʷm</i> | 'Who came to see you?' |
| (5) | <i>hučʷs oy</i> | 'When did he come?' |

However, occasionally a question word follows the verb:

- | | | |
|-----|-------------------------|------------------------|
| (6) | <i>nakpa šiwan hūtʷ</i> | 'Where is John going?' |
| (7) | <i>miʷy huča</i> | 'When did you go?' |

1.2. Substitutes.

Substitutes of any kind tend to occur early in the sentence and almost always before the verb.

1.2.1 Adverbial substitutes, such as 'then' and 'there' occur first, the time substitute coming before the location one when both are present.

- | | | |
|-----|---------------------------------|------------------------------------|
| (8) | <i>hesak hemum iwatum ikāma</i> | 'Then there he made his cornfield' |
|-----|---------------------------------|------------------------------------|

1.2.2 Pronouns whether subject or object normally occur before the verb, but occasionally may occur after the verb. The significance of the pronoun following the verb is not clear.

- | | | |
|------|---|---------------------|
| (9) | <i>ač anakpa</i> | 'I'm going.' |
| (10) | <i>mič miyōšpaʷt heʷm pēto</i>
you he-helped-you the Peter | 'Peter helped you' |
| (11) | <i>he dʷa hʷyʷpa</i>
he no speak | 'He doesn't speak.' |
| (12) | <i>tʷiiga mič miʷoy</i>
why you you-go | 'Why did you go?' |
| (13) | <i>mimiñpa mič</i>
you-come you | 'Are you coming?' |
| (14) | <i>dʷa nakpa he</i>
no he-goes he | 'He is not going.' |

1.3. Nouns.

Nouns may either precede or follow the verb. When only one noun is present the more usual order is for the noun to follow the verb.

- | | | |
|------|----------------------------------|------------------------------------|
| (15) | <i>tsuʷuyam nuʷkum heʷm jusi</i> | 'Joe arrived late in the evening.' |
| | evening arrived the Joe | |

- (16) *sētpa heʔm pālšīñ itʷakkaʔam* 'The man returned to his house.'
 returned the man his-house-place

1.3.1 Nouns may also precede the verb, however, when this occurs normally some pragmatic meaning is added.

1.3.2 **Introducing a central character.** This most frequently happens at the beginning of a story or an account of some significant incident.

In initial sentences of a story or discourse, nouns precede the verb most of the time. In such cases, the main participant of the story or discourse is being introduced:

- (17) *Miguel oy tūhi con Rosendo* 'Miguel went hunting
 Miguel go-PAST shooting with Rosendo with Rosendo.'
 (18) *tūm pālšīñ hesak kaʔamʷy hāmñōm* 'A man has a cornfield
 one man then cornfield-has forest in the jungle.'

In the first example, although two men went hunting, Miguel is the principal participant. He is a friend of the narrator about the same age, and a much more experienced hunter than Rosendo, who is a younger man just beginning his adult life.

The second sentence begins a story about a man meeting the *makti* or 'ghost people'. The man, although never named, is the central character of the story.

1.3.3 A second feature of noun preceding verb seems to be to distinguish one participant from another:

- (19) *hemagam heʔm Miguel itʷuh mʷa* 'There Miguel shot a deer.'
 there the Miguel shot deer

Two men, both named, are involved in the account of the hunt. Here Miguel is being distinguished from Rosendo.

1.3.4 **Topicalization.** Topicalization is achieved by placing at the front of the sentence a nominal (noun phrase or pronoun) which does not fit in the remainder of the clause as either subject or object.

- (20) *hesak Rosendo miñ ihātuy* 'Then as for Rosendo, his father came.'

In this sentence, Rosendo could be part of the possessive noun phrase *Rosendo ihātuy*, but instead the possessor is placed in initial position as topic.

- (21) *hesak he yah ibala, ibaketun ikodaʷy itʷuhkuy* 'Then he ran out of
 shot, he put his
 tamping rod into
 his gun'

This sentence has the following analysis: *he* 'he' is not the subject of the verb *yah* 'to finish, to end', it is rather the topic of the sentence which contains two clauses, and is also the subject of the verb in the second clause. The subject of *yah* is *ibala* 'his shot'. In the second clause, *ibaketun* is moved

before the verb to introduce an element of surprise and perhaps to contrast it with *bala*, i.e. that which one would normally put into a gun. A better translation would be 'Then as for him, his shot ran out, he put his tamping rod into his gun.'

1.3.5 When a single noun occurs as subject with two independent verbs, it normally comes between the two verbs:

- (22) *matstā he'm pāšīñ akkaatā; he'm nāwat ikkaayah*
 3-catch-PASS the man 3-kill-PASS the shamans 3:3-kill-PL
 'The man was caught and killed; the shamans killed him.'

1.3.6 Two nouns with one verb. When two nouns occur the usual order is for the one to precede verb and one to follow. Most frequently the subject precedes and the object follows the verb. Both nouns may precede the verb, although this pattern seems to be fairly rare. Both nouns may also follow the verb, in which case the subject may either precede or follow the object. However, when two objects (direct and indirect) occur either may precede the verb.

- (23) *hesak Miguel ičimpa išuk hunāyi* S V O
 then Miguel 3POS-dog 3:3-smell spotted cavy
 'Then Miguel's dog smelled a spotted cavy.'
- (24) *he'm nū'upu nak atuga'y po'obay* S V O
 the Noberto go 3:1-pick-BEN white-leaf
 'Noberto went to pick white-leaves for me'.
- (25) *...iga he'm yōmo tuḡgagam pāšīñ inī'itʷ* ...S O V
 ...that the woman another man 3:3-have
 '...that the woman had another man.'
- (26) *i'uk na kāy, ha'yay na i'uk* V O S, O V
 3:3-drunk water jaguar, much water 3:3-drunk
 'the jaguar drank water, he drank a lot of water.'
- (27) *hesagam ikka'mtā'pnam ināka he'm čimpa* V O S
 then 3:3-put.on-in.vain-still 3POS-skin the dog
 'Then the dog tried to put on his skin [but couldn't].'
- (28) *hesak iyo'omawom he'm pāšīñ he'm yōmo* V S O
 then 3:3-marry-COM the man the woman
 'Then the man married the woman.'
- (29) *ha'yay tumiñ ikku't he'm mūlah* O V IO
 much money 3:3-fed the mule
 'he fed the mule much money'
- (30) *tumiñ ikipsa ikompānih* O V S
 money 3:3-measure-INC 3POS-compadre
 'His compadre was counting money.'

1.4. The significance of alternate orders.

As has been seen above, the most usual order of a clause containing nominal is V N. However, when the noun precedes the verb, it is highlighted to (a) introduce a central participant, or (b) to distinguish one participant from another and, in some instances to introduce an element of surprise, or (c) to serve as topic of a following sentence.

2. Sentences with more than one clause.

Potentially independent clauses can be strung together in sequence to form a single sentence. The order of clauses seems to follow the sequence in which the separate events took place.

- (31) *hesak nuʔk siete dia, nak iʔaʔm, dʔam i*
 then arrived seven days, went he-look, not he-exists
 'Then after seven days, he went to look, he was not there.'
- (32) *Λc apoyum huʔuma hamñōm, akuwasaʔy yuʔuči, ahoʔobagnas*
pakushōm, hemum amoj, dʔa anuʔk antakma.
 1-run-COM far forest-in, 1:3-bite ants, 1-tumble ditch-in,
 there 1-slept, no 1-arrive my-house.
 'I ran into the jungle, ants bit me, I tumbled into a ditch,
 there I slept, I didn't get home.'

Time subordinate clauses usually come first in the sentence.

- (33) *jesak mu aʔnoy Chinameca, heʔm pāšīñ iñāʔmayyahpaʔap iga*
Juan Gringo, he ihākne wastēn kawah.
 then when 1-go.and.come Chinameca, the man 3:3-say-BEN-
 PL-NOM that Juan Gringo, he 3:3-lead-DUR two horses
 'When I went to Chinameca, the man they call
 Juan Gringo led two horses.'

Clauses with *iga* 'that, because' usually follow the main clause, although they have also been observed to precede the main clause.

- (34) *imatsaʔp tsāši ikōbak iga itʔutpudaʔypa ikutōtʔi*
 he-grab-INC child 3POS-head that he-suck.out-BEN-INC
 3POS-brains
 '[The Hunchuts] grabbed the child's head in order to
 suck out its brains.'
- (35) *hesak iʔāma iʔiš iga ipaʔtpa čīñu*
 then 3POS-brother-in-law 3:3-saw that 3:3-find-INC honey
 'Then his brother-in-law saw that he found honey.'
- (36) *hesak iga dʔa igkehaʔy heʔm čīñu, akyaʔgalytʔā hunčuts tehahkaʔam*
 then because no 3:3-show the honey, 3-push-PASS
 Hunchuts steep.place
 'Then because he didn't show him the honey,
 the Hunchuts was pushed over the cliff.'

In conditional sentences, the condition normally precedes the result.

- (37) *me'iga hu'umΛnam ma'niš, mantsAgaghe'k idʷΛk*
 if far 2:1-see, 2:1-startle contrary.to.fact
 'If I had seen you far away, I would have startled you.'

3. Word order in Noun Phrases.

We distinguish three types of noun phrases (NPs): modified NPs, possessive NPs, and appositional NPs.

3.1.

Modified NPs consist of a head noun plus either a demonstrative or a quantifier. The modifier precedes the noun head:

- (38) *pe'm yōmo* 'that woman'
 (39) *he'm chimpa* 'the dog'
 (40) *tūm kawah* 'one/a horse'
 (41) *wātvi soldaho* 'many soldiers'
 (42) *tuggagam pāšīñ* 'another man'
 (43) *wāstēn misi* 'two cats'
 (44) *ha'yay aytay* 'many rows'

The demonstratives *he'm* and *pe'm* may precede quantifiers:

- (45) *he'm tuggak pāšīñ* 'the other man'
 (46) *pe'm wāstēn misi* 'those two cats'

However, I did find a few examples of the modifier following the noun. This pattern is quite rare.

- (47) *ha'api ha'yay* 'dough a lot of it'
 (48) *po'obay ha'yay* 'white-leaves many (a lot of) them'

The only explanation I can offer for this pattern is that the modifier appears to be a kind of emphatic after thought.⁴

3.2.

The possessive phrase consists of a noun or pronoun possessor and a possessed item inflected with person marking affixes. Thus:

- (49) *tsāši ikōbak* 'the child's head' [lit. child his-head]
 (50) *šīwan ikawah* 'John's horse' [John his-horse]
 (51) *āc antak* 'my house' [I my-house]

The possessor can be omitted:

- (52) *iykāma* 'your cornfield'

⁴ Both phrases are from the same story which I was recording by hand. I now suspect the informant may have been bored and was trying to hurry so gave me at first the phrase without the modifying quantifier, then decided to add it for accuracy. On the other hand, this may be a truncated part of a repeated phrase that occurs occasionally: *iha'pyah ha'api, ha'yay [iha'pyah.]* where the final verb is omitted.

- (53) *tantak* 'your and my house'

The possessed item can be the head of a modified phrase:

- (54) *yap inha'yuk* 'this your younger sibling'
 (55) *wastēn ikawah* 'his two horses'

The possessor can be a modified noun:

- (56) *he'm ts'ši ikōbak* 'the child's head'
 (57) *tūm pāšīñ ikawah* 'one man's horse'

Apparently, a modifier (demonstrative or quantifier) may not occur between the possessor and the item possessed:

- (58) *šīwan he'm ikawah*⁵

3.3. Appositional phrases.

In SP adjectives indicating quality, i.e. 'good', 'red', 'small', etc. do not modify the noun head directly, as do demonstratives and quantifiers. Rather they either combine into compounds with nouns or they have a nominalizing suffix *-pak* attached. When an adjective with *-pak* occurs it may itself be the noun or it may in apposition with another noun:

Illustrations of compounds:

- (59) *woyotak* 'round house'
 (60) *išutvumānak* 'her little child'
 (61) *nuntahayi* 'real speech [i.e. SP]'
 (62) *tsabatstak* 'red house'

Illustrations of nominalized adjectives with nouns:

- (63) *he'm wōñi pōpopak* 'the white girl' [lit. 'the girl the white one']
 (64) *he'm mahpagam imānak* 'his oldest child' [lit. 'the big one his child']
 (65) *he'm wabak pāšīñ* 'the good man' [lit. 'the good one man']
 (66) *he'm pāšīñ (he'm) wabak* 'the good man' [lit. 'the man (the) good one']

The difference between the use of the compound and the adjective plus *-pak* in apposition to the noun seems to be that of specificity. The compound will generally refer to a specific thing, whereas the appositional construction will usually refer to something more general.

Another kind of appositional phrase is the noun head plus a nominalized clause as the second element of the phrase. The noun would otherwise be one of the constituents of the clause, either subject, object, or the like. This kind of situation can be considered as a kind of relativization. Thus:

⁵ This would be a possible locution in a broader context: *šīwan he'm ikawah togoy* 'As for John, his horse got lost.' In this case *šīwan* is the topic and *he'm ikawah* the subject, and *togoy* the verb.

- (67) *heʔm pāsiñ heʔm iñʌʔmayyahpaʔap iga Juan Gringo*
 the man the 3:3-say-BEN-PL-NOM that Juan Gringo
 'the man, the one they call Juan Gringo'
- (68) *heʔm pāsiñ (heʔm) kahayñetawʌʔap iizkuy*
 the man (the) 3-dig-BEN-DUR-PAS-NOM eyes
 'the man, the one whose eyes were dug out'
- (69) *tūm kosah nekspaʔap*
 'a thing, one that is sticky'
- (70) *heʔm kuy itʌŋwaʔap*
 'the tree, the one he chopped'

In these phrases the noun is first and the nominalized clause follows the noun.

4. Word order in Verb Phrases.

The order of elements in VPs is relatively fixed compared to the order in NPs and clauses.

4.1.

There are several adverbial particles that may occur with verbs. The most common are:

- (71) *dʷa* 'negative'
 (72) *odoy* 'negative' (with imperative and obligatory)
 (73) *idʷʌk* 'contrary to fact'
 (74) *wʌʔap* 'possibility'
 (75) *mu* 'time subordinator of the clause'
 (76) *agi* 'intensive'
 (77) *meʔiga* 'if'

The negative *dʷa* always occurs before the verb it negativizes:

- (78) *dʷa anʌkpa* 'I'm not going'
 (79) *si dʷa añč'i'iba, mantuhpa* 'if you don't give it to me, I'll shoot you'

The particle *idʷʌk* has a fairly wide range of usage and specific meaning depends upon context. It follows the verb it modifies unless *dʷa* occurs, in which case it follows *dʷa* and preceeds the verb:

- (80) *amogpa idʷʌk*
 'I had been sleeping'
- (81) *anʌkpa idʷʌk*
 'I was going [but didn't]'
- (82) *itʷ idʷʌk tūm nak ičeʔes kukʌʔʌm*
 3-be idʷʌk a toad 3POS-bed-under
 'there had been a toad under his bed'

- (83) *tūm pāšīñ ipaʔt maa, naʔkpa idʔak iʔaʔm ipoʔopo*
 a man 3:3-find deer, go-INC idʔak 3:3-look 3POS-shrimp.trap
 'a man found deer, he was going to look at his shrimp trap
 [but he never got there]'

The other particles all precede the verb with which they occur:

- (84) *waʔap naʔkpa* 'he might go'
 (85) *mu aʔnoy Chinameca* 'when I went to Chinameca'
 (86) *agi poypa heʔm čimpa* 'the dog is running fast.'
 (87) *meʔiga miñʔakpa, ač anaʔkpatʔim* 'if you go, I'll go too.'

4.2. Verb phrases with auxiliary verbs.

There are several types of verb phrases consisting of auxiliary verb plus main verb.

4.3.

The most frequent kind of auxiliary verb phrases consist of a motion verb plus main verb. Such auxiliaries are:

- (88) *naʔk* 'to go'
 (89) *miñ* 'to come'
 (90) *oy* 'to come and go'
 (91) *moh* 'to begin'
 (92) *yah* 'to finish'

The order of elements in this phrases is auxiliary verb stem, aspect suffix, person marking prefix, main verb stem:

- (93) *naʔkpa ipʔak* 'he goes to get it'
 (94) *oyum miʔaʔm* 'he came to see you'
 (95) *mohum iwat tʔak* 'he began to build a house'

When the main verb is intransitive, there is a suffix -i added to the main verb:

- (96) *mohum wiʔiki* 'he began to eat'
 (97) *miñpa mikōñi* 'you come to sit down'

In addition to the aspect suffixes, the auxiliary also may add the imperative suffix -ʔ and the main verb has the same structure as above when the verb is intransitive. However, when the main verb is transitive the imperative suffix is repeated on the main verb.

- (98) *miñʔ mikōñi* 'come and sit down'
 (99) *miñʔ aʔamaʔ* 'come and look at it'
 (100) *naʔka paʔkaʔ* 'go and get it'

4.3.1 There is a different set of auxiliaries whose function is different from the set described above. The auxiliary verb is inflected with both person markers (the absolute) and aspect suffixes. The main verb, whether transitive or intransitive, is inflected with the ergative set of person markers. The person markers must both refer to the same person:

- (101) *awΛ²āp annΛk* 'I can go'
 (102) *miwΛ²āp iɣwat* 'You can do it'
 (103) *sΛ²aba iñΛk* 'He is going' [in process of]

However, when the action has been completed, the particle *mu* occurs with the main verb:

- (104) *dʷa awΛā mu annΛk* 'I couldn't go'
 (105) *yah mu iwat itʷΛk* 'He finished building his house'

The auxiliary verb *sΛ* 'be' [in progressive sense] may also follow the main verb. However, when it does so, it is inflected with ergative person markers:

- (106) *nΛkpa iśΛ* 'He is (in the act of) going'
 (107) *awi²kpa ansΛ* 'I am eating'

5. Conclusion.

Word order in SP is relatively free, although some orders of constituents seems definitely preferred over others. In phrases these tendencies yield almost fixed orders. Although even with those orders that seem most fixed there seems to be possible alternatives.

In some cases, orders of constituents within clauses seem to be relatively fixed, (e.g. question words seem always to occur before the verb), while other elements seem to have various possible orders.

In certain cases of nouns coming before the verb, pragmatic meaning seems to be involved.

THE SUFFIXES -AGE AND -MENT IN MODERN FRENCH: DICTIONARY VS SPEAKERS*

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0. Introduction

This paper will examine what is principled and what is arbitrary in the distribution of deverbal noun suffixes -ment and -age in French. First, section 1 will review the generalizations put forth by linguists in order to account for the principled cases. Section 2 will explore the realm of arbitrariness by looking at actual dictionary data that are counter-examples to the principles exposed in section 1. Section 3 will touch on the implications for the speaker's internal grammar and section 4 will look at the results of a test conducted on French speaking 6th Graders, 12th Graders and Adults with a University degree to find how clearly the principles of distribution are grasped and how knowledge of counter-examples is integrated by these speakers.

1. Distributional generalizations¹

Dubois (1962) (1969) points to the complementary distribution of -age and -ment with respect to transitivity. He shows that transitive verbs referring to concrete actions or phases in the fabrication process are nominalized in -age whereas intransitive verbs referring to accomplished actions are nominalized in -ment. This becomes clearly polarized when a single verbal lexeme may be used either intransitively or transitively. The intransitive lexeme will nominalize in -ment and the transitive one in -age, as can be seen in (1).

(1) (a) Intransitive:

Les paupières gonflent —————> Le gonflement des paupières
Les mœurs se raffinent —————> Le raffinement des mœurs

On gonfle les pneus → Le gonflage des pneus
On raffine le sucre → Le raffinage du sucre

Pupier et al (1975) subscribe to the above-mentioned transitivity thesis as well as to the action/result dichotomy. They refine the transitivity hypothesis, originally based on grammatical relations, by mentioning the importance of the semantic role of Agent. They allow for the constructions given below in (2).

- ## L'empoisonnement du puits

* L'empoisonnement du puits par Isidore.

(4) C'est pas d'la {natation } qu'y fait, c'est du {nageage }.
(op.cit. p.130) {traduction} {traduisage}

(5) J'ai fait un switchage (*switchement)
Ce travail-là, c'est un botchage (*botchement) (op.cit. p.126)

For the purpose of the study conducted here, we have retained the following table of distribution for -ment and -age:

- | | |
|--|---|
| <p>(6) $V_{\text{base}} + \text{ment}$</p> <p>(1) Base = Intr. V.
where subject = theme</p> <p>(2) Base = Intr. V.
where V = animal cry</p> <p>(3) V + ment = formal style</p> <p>(4) V + ment = neutral with
respect to
evaluation</p> | <p>$V_{\text{base}} + \text{age}$</p> <p>(1) Base = V trans.
where object = theme</p> <p>(2) Base = V intr.
where subject = agent
subject is capable of
controlling the action</p> <p>(3) V + age = colloquial
style</p> <p>(4) V + age = negative with
respect to
evaluation
(pejorative)</p> |
|--|---|

2. Dictionary data

This section will look at what is dictionary data on -ment and -age and how it differs from the distributional generalizations put forth by linguists?

2.1 Pairs

Usually verbs that are used in a transitive as well as intransitive or middle fashion show a pair of nominalizations in -age (tr)/-ment (intr). Examples are given in (7).

- (7) réchauffage/réchauffement; empilage/empilement;
battage/battement; frotage/frottement;
blanchissage/blanchissement; etc.

One noteworthy exception to this pattern is given in (8a).

- (8) (a) développement (tr) développement (intr)

This transitive «développement» is restricted to «film development». In fact, there is a homophonous verb 'développer (tr.)' which is a canadian synonym of 'déballer' «to unwrap», and which nominalizes in -age as the example in (8)(b) shows:

- (8) (b) Le développement des cadeaux de Noël

2.2 Transitives

Most transitive verbs nominalize in -age. Especially, of course, if they describe a concrete action clearly performed by an agent on a concrete object: the theme.

- (9) Le sciage, le séchage, le cordage du bois

There are, however, a large number of counterexamples to this generalization. Just consider the examples given below in (10).

- (10) V-ment de theme (par agent)
- (a) Le bombardement de la ville (par les ennemis).
 - (b) L'enseignement du français (par les francophones).
 - (c) Le harcèlement des enfants (par les parents).
 - (d) Le tutoiement des profs (par les élèves).
 - (e) L'emprisonnement de Nelson Mandela (par le gouvernement d'Afrique du Sud).

On the other hand, there are cases of dictionary counterexamples (Juilland 1965, Robert 1987, Larousse 1972) that we found clearly contradictory with our native intuitions and that we would clearly regularize in «age». Some of them are given in (11).

- (11) Dictionary: bercement; sucement; rongement, etc.
- Speaker: berçage; suçage; rongage, etc.

2.3 Intransitives

When a verb is intransitive it has only one argument which is either a theme or an agent. The thematic intransitives predominantly nominalize in -ment as can be seen in (12a)

- | | |
|--------------------------|-------------------------------|
| (12a) Le plancher craque | Le craquement du plancher |
| Le tonnerre gronde | Le grondement du tonnerre |
| Le temps se réchauffe | Le réchauffement du temps |
| Les cheveux blanchissent | Le blanchissement des cheveux |

Noteworthy exceptions are the followings:

- | | |
|-------------------------------|--------------------------|
| (12b) Le décollage de l'avion | «take-off of the plane» |
| Le dérapage de l'auto | «skidding of car» |
| Le godage de la robe | «puckering of the dress» |
| Le gondolage du bois | «warping of wood» |
| Le roulage des voitures | «riding of cars» |

This last form in -age (roulage) was the only listed one in Larousse (1972). Robert (1987) now lists both 'roulement, and 'roulage', the latter with the mention: old.

With agentive intransitives the situation is slightly different. If they represent habitual actions and the subject is + human, nominalizations in -age are common:

(13) (a) vagabondage
chômage
commérage
patinage
bricolage

(13) (b) bavardage
bafouillage
babillage

The examples in (13)(b) belong to the category of sounds on which we have more or less control. Here we must differentiate humans and animals. The category of animal cries seems to favor -ment as a nominalizing suffix as can be seen in (14).

(14) miaulement (cat); aboiement (dog); jappement (dog);
gazouillement(also gazouillis) (bird); roucoulement (pigeon);
piaillage (little birds); graillement (crow);
croassement(crow); meuglement (cow); couinement (rabbit) etc.

The exceptional 'caquetage' is listed in Larousse (1972) but Robert (1987) lists both 'caquetage' and 'caquètement'.

For human cries the situation is not as clear-cut. The table given in (15) contrasts listed words in 3 dictionaries.

(15)	Robert	Larousse	Bélisle
bafouiller	age	age	age
bredouiller	age/ment	age/ment	ment
marmotter	ment	ment	age/ment
brailler	ment	ment	age/ment
chialer	—	—	age

3. The internalized grammar of French speakers

With the amount of exceptions that one finds in dictionary data, the conclusion that the distribution of -ment and -age is completely arbitrary in modern French seems inevitable. This is unwarranted though as it would mean that French speakers would have no guiding principles to help them choose among the alternatives and they would have to memorize, along with the basic verb, the specific suffix that goes with each verb. It is better to assume that the speakers possess the generalizations of (6) and that they memorize those forms which are exceptional, provided they encounter them often enough in their life. Forms that are exceptional and rare would, it is hypothesized, be regularized... and eventually changed in dictionary entries. (cf. roulage, previously)

Apart from knowing and applying these generalizations, speakers are likely to create new words for stylistic effects. These creations will only come about using productive suffixes, of which -ment is not one. According to Pupier et al. (1975) and Léard (1984) both -age and -erie are. One function that -age and -erie seem to perform most productively is that of evaluative judgement of the base.

4. The survey

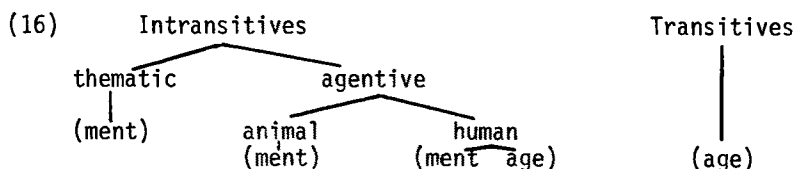
4.1 Groups

In order to find how clearly the distributional generalizations of (6) are perceived by speakers of French, we have tested 3 groups of Francophones in Fredericton, New Brunswick. The first was a group of 20 6th graders; the second, a group of 16 12th graders; the third, a group of individually tested 18 adults, all with at least one University degree and ranging between 29 and 65 years of age.

4.2 The test

The written test consisted of 38 questions. In each question the subject had to complete a sentence by deciding among three nominalizations: in -ment, in -x and in -age, where x = ion, ure, erie, ise, Ø, is, ance. The 3 nominalizations had to be graded 1 (best choice), 2, and 3 (worst choice).

The verbs selected are given in (16).



réchauffer	gratifier	chialer	battre
craquer	gabrer	grelotter	chatouiller
battre	couiner	<u>flâner</u>	<i>bercer</i>
gronder	miauler	bavarder	<i>développer</i>
développer		<u>rêver</u>	<i>sucer</i>
chatouiller		hurter	réchauffer
rougir		<u>crier</u>	taquiner
<i>gondoler</i>			<i>ronger</i>
			<i>tutoyer</i>
			achaler

There were also distractors in the form of 8 additional verbs, whose nominalized forms are neither in -ment nor in -age. They are given in (17).

(17) Distribution; consolation; adoration; blessure; natation; participation; souffrance; instruction.

The 3 underlined forms in (16) were also intended as distractors as their standard nominalizations are flânerie; rêverie and cri.

The italicized forms correspond to dictionary counter-examples. The verb «gabrer» (animal cry) is a non-sense word.

4.3 Results and analysis

(18) (a) Thematic Intransitives: % of -ment

	Grade 6	Grade 12	Adults
réchauffer	65	100	100
craquer	75	100	83.3
battre	90	100	100
gronder	70	93.8	100
développer	75	100	100
chatouiller	52.6	87.5	88.9
rougir	85	93.8	88.9
Mean:	73.2	96.4	94.4

(19) (b) Gondoler: % of -ment/-ation/-age

	Grade 6	Grade 12	Adults
-ment	40	56.3	66.7
-ation	30	18.8	--
-age	30	25	33.3

Of all the generalizations, the one governing thematic intransitives seems to be best captured, as the mean of responses in -ment for each group shows. It seems that the reason why adults did a little less well than Grade 12 is because of their choice of «craquage» (3/18: 16.7%). This is clearly an evaluative use of the suffix -age.

As for applying knowledge of a generalization to a less known form, the data for «gondoler» show that Adults do better than Grade 12 who do better than Grade 6. This can also be seen with results for animal cries that follow:

(20) (a) Agentive Intransitives (animals): % of -ment

	Grade 6	Grade 12	Adults
grailleur	55	56.3	77.8
gabrer	50	56.3	66.7
couiner	30	62.5	77.8
miauler	80	87.5	94.4
Mean:	53.7	65.6	79.1

«Gabrer», a non-sense word, most clearly shows the ability of applying knowledge of a generalization to an unknown form, but so

do the other animal cries except for «miauler» which is a known form. If we exclude «miauler», we get the following means:

(20) (b) Grade 6: 45%; Grade 12, 58.4%; Adults: 74.1%

The results for «miauler» in a colloquial «agentive» setting given below in (23c) show that 6th Graders pick style (-age) over norm (-ment). Adults and Grade 12 students divide nearly equally with a slight preference for style.

(20) (c) Miauler in colloquial «agentive» setting: % of -ment and -age

	Grade 6	Grade 12	Adults
-ment	30	43.8	44.4
-age	70	56.3	50
-erie:	--	--	5.6 (1/18)

The next category is the least homogenous, but it is indicative of the relationship of style to norm. As intransitives, this group of verbs would be liable to take the suffix -ment, even though, as seen in section 2.3, some of them nominalize in -age.

On the other hand, these represent a group of actions which could be evaluated, and therefore require the suffix -age. This applies whether their associated suffix is of the -ment/-age kind (22a) or not (22b). The dictionary nominalizations for this category are given in (21). No nominalization is listed for 'chialer', a regional word.

(21) grelottement; bavardage; hurlement; flânerie; rêverie; cri.

Picking the suffix -age over the suffix -ment, -erie, or Ø would, of course, be a matter of choosing style over norm. We have seen in (20c) that younger students did well at this. They also perform well here, better than Grade 12 and adults as we can see with the means in (22c).

(22) (a) Agentive Intransitives (humans): % of -age and -ment

	Grade 6		Grade 12		Adults	
	-age	-ment	-age	-ment	-age	-ment
chialer	70	30	43.8	56.3	77.8	22.2
grelotter	70	30	37.5	62.5	16.7	83.3
bavarder	70	30	62.5	37.5	88.9	11.1
hurler	25	75	--	100	11.1	88.9

(22) (b) Agentive Intransitives (humans): % of -age and -X

	Grade 6		Grade 12		Adults	
	-age	X	-age	X	-age	X
flâner (erie)	60	20	62.5	37.5	61.1	38.9
rêver (erie)	85	5	43.8	50	33.3	61.1
crier (ø)	25	70	12.5	87.5	11.1	88.9

(22) (c) Means for choice in -age

Grade 6: 57.8%; Grade 12: 37.5%; Adults: 42.8%

The means are more striking when we remove «hurler» and «crier» from the count as in (23) below. The high percentage of -ment and -X (most striking with Grade 6) is no doubt due to the fact that these nominalizations were pluralized.

(23) Revised means (without «hurlements» and «cris»)

Grade 6: 71%; Grade 12: 50%; Adults: 55.6%

Comparison of the distribution of -age and -ment for «grelotter» and «bavarder» indicates that 6th Graders are least affected by the knowledge of a dictionary form and that Grade 12 are to a lesser extent than Adults. We can also observe this phenomenon by looking at the results for «développer» (tr) and «tutoyer». The choice of -ment was greater for Adults (86.1%) than for Grade 12 (60.6%) or for Grade 6 (50%). These results appear in (24b) below.

(24) (a) Transitives: % of -age and -ment

	Grade 6		Grade 12		Adults	
	-age	-ment	-age	-ment	-age	-ment
battre	45	55	56.3	43.8	77.8	22.2
chatouiller	75	25	50	46.7	55.6	38.9
réchauffer	55	45	31.3	68.8	72.2	27.8
taquiner	80	15	68.8	6.3	50	5.6
achaler	35	55	31.3	50	66.7	33.3
Means:	58	39	47.5	43.12	64.5	25.5

24) (b) Transitives with dictionary form in -ment: % of -age and -ment

	Grade 6		Grade 12		Adults	
	-age	-ment	-age	-ment	-age	-ment
bercer	75	25	50	43.8	50	50
sucer	65	5	62.5	25	61.1	33.3
ronger	40	60	43.8	56.3	55.6	44.4
développer	35	55	18.8	81.3	16.7	83.3
tutoyer	42.1	45	53.3	40	11.1	88.9

The results for transitives are not as clear as the ones for intransitives. The selection of -age over -ment was achieved best by adults followed by Grade 6 followed by Grade 12 as the means in (24a) indicate. The better performance of 6th Graders is no doubt due to the greater productivity of -age.

We noticed earlier that 6th Graders were sensitive to style and this must explain their preference for -ment with «battre», (24a) the sentence containing formal cues (un tel).

The generally poorer performance of both adults and 12th Graders on these transitive forms must be attributed to flaws in the test. If the agent is not mentioned as a complement of the nominalization, it is indeed possible to interpret the derived noun as an action on a theme leading to V-age or as an agentless process undergone by the theme leading to V-ment.

With respect to Transitives whose nominalizations are in -ment, as expected, Adults (60%) did better than Grade 12 (49.3%) who did better than Grade 6 (38%).

5. Conclusion

The survey of native speakers that we conducted showed that:

- 1) the principles of distribution governing -age and -ment (internal grammar) are acquired over a period of time, which explains why 12th Graders and adults generally do better than 6th Graders;
- 2) the acquisition of exceptional forms is also done through time and adults do better than 12th Graders who do better than 6th Graders;
- 3) younger students are more likely to favor style over norm through a productive use of the suffix -age, whereas adults tend to pick the dictionary form even in colloquial settings.

Footnotes

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1. Shortage of space forced us to exclude discussion of Dubois & Dubois (1971) and Léard (1984).

2. These conflict with Pupier et al (1975)'s statement to the effect that «V-ment de theme par agent » is ungrammatical. These in fact could be ungrammatical in spoken colloquial Québec French (where the «age» form would be the grammatical one) but in standard French they are most acceptable with and without the agentive complement.
3. Sentence 18 (translated in English) is an example of a poorly designed sentence.
«Since we arrived late for lunch, Pierre had to heat the soup up. Fortunately, «heating up» (-ment, -erie, -age) took only 30 seconds in the micro-wave oven.» It is indeed possible to envision the action of Pierre and choose -age or the process of the soup heating up and choose -ment.

References

- Dubois, J. (1962). Etudes sur la dérivation suffixale en français moderne et contemporain. Librairie Larousse, Paris.
- Dubois, J. (1969). Grammaire structurale du français. Vol.3, Librairie Larousse, Paris.
- Dubois, J. et C. Dubois (1971). Introduction à la lexicographie: le dictionnaire. Librairie Larousse, Paris.
- Léard, J.M. (1984). «Aspects sémantiques de la dérivation: Quelques suffixes en français et en franco-qubécois.» Revue de l'Association Québécoise de linguistique. Vol. 3-3, Sherbrooke, pp.155-204.
- Pupier, P. & S. Lepage & B. Courte (1975). «-age dans le système suffixal du français québécois». pp.117-157 in Recherches linguistiques à Montréal, Vol. 4, mai 1975.

Dictionaries

- Bélisle, L.A. (1979). Dictionnaire Nord-Américain de la langue Française. Beauchemin, Ottawa.
- Juilland, A. (1965). Dictionnaire Inverse de la Langue Française. Mouton & Co., The Hague.
- (1972). Nouveau Petit Larousse. Librairie Larousse, Paris.
- Robert, P. (1987). Le Petit Robert. ed. A. Rey & J. Rey-Debove, Dictionnaires Le Robert, Paris.

NOUN PHRASE AND PHRASAL NOUN

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Introduction

From the evidence of the earliest Indo-European documents, it is obvious that many of the modern Indo-European languages show the result of a typological revolution. Whereas, for example, the older documents show free word order and a massive array of paradigms of inflections, many of the modern languages have severely restricted inflections and introduced very strict grammatical configurations where order is not free at all, as in the case of article plus noun, where the whole configuration amounts to a phrasal noun, an element unknown in the early forms of Indo-European. It appears that the earliest of these configurations to develop was the prepositional phrase, and it is possible, in fact to follow the evolution of the preposition from a somewhat mobile preverb in the early texts. The purpose of this paper is to trace this evolution, and to show how the creation of the prepositional phrase as a new configuration could lead to similar configurational developments in the noun phrase and the verb phrase, and the genesis of a new typology.

Adjective and Noun in Early Indo-European

In the earliest texts from IE languages, a noun's modifiers could be physically separate from it: their relationship to the noun was marked by agreements of number, gender and case, as the following Latin example shows (Vergil Eclogues I:1-2):

1. Tityre,	tu	patulae	recubans	sub	tegmine	fagi
Tityrus,	you	broad	lying	under	cover	beech
m.s.voc	s.n	f.s.gen	s.n		nt.s.ab	f.s.gen
Tityrus, you, lying under the cover of a broad beech tree,						

Silvestrem	tenui	Musam	meditaris	avena
woodland	slender	Muse	ponder-you	oaten pipe
s.acc	s.ab	f.s.acc	2.s	f.s.ab
celebrate the woodland Muse on slender pipe.				

Such word ordering is quite impossible in Modern Romance or Germanic languages, where epithets must go either between article and noun, or immediately following the noun. In languages such as Czech or Russian, which have never developed article systems, however, the fluid ordering of this Latin example is still possible, and ordering is commonly used for stylistic and expressive purposes in ways that are not possible in English or French, for example.

Since Latin, which had no article system, and also had such a free word order for nouns, definers and adjectives, is the ancestor of the modern Romance languages, all of which have article systems and a configurational order for the noun phrase, it is obvious that a word ordering revolution has taken place between the older forms of Indo-European and some of the modern vernaculars.

It is important for our purposes to observe that in the Latin text above there is only one fixed ordering - that of preposition and following noun, found in the phrase sub tegmine. It also happens that sub is the only word in the whole sentence that has no inflectional mark of any kind. In fact the only common configurational requirement in Classical Latin (with the exception of the cliticised forms mecum, tecum, exclusive to the personal pronouns, was that the preposition should immediately precede the noun it governs - hence the name preposition, a calque upon Greek prothesis - and the obvious reason for this ordering is that the preposition carries no inflectional mark which could be used for agreement. Since many prepositions can be used with more than one nominal case, preposition and noun must be made to form a configurational syntagma in order to avoid confusions.

The Development of the Preposition

The Homeric poems show us, however, that this fixed positioning of preposition-plus-noun in Classical Latin is already a development from an earlier state of affairs that is illustrated by the Iliad and the Odyssey. In these Greek texts, which predate Classical Latin by the best part of a millenium, we can see the preposition beginning to emerge from what was obviously a preverb in the earliest forms of Indo-European. As Chantraine comments (1963:82): "Dès les plus anciens textes grecs apparaissent les prépositions qui précisent la valeur concrète des cas...Il s'agit...de petits mot invariables qui viennent préciser l'idée exprimée, et qui originellement, sont autonomes. Ils peuvent s'employer soit absolument, soit à coté d'un verbe comme adverbes ou comme préverbes, soit à coté d'un nom comme prépositions."

In the Iliad and the Odyssey we can find quasi-minimal pairs where the three different configurations mentioned by Chantraine are visible, as follows: (1) the preverb is attached to its verb as a prefix; (2) the preverb is detached from its verb and stands in initial position somewhat as a sentence adverb; (3) the preverb is detached from its verb and is either preposed or postposed to a noun in an oblique case. The function of this element in the Homeric poems is clearly that of an adverbial particle which modifies either the verb, the sentence as a whole, or a noun in an oblique case which is itself playing an adverbial role.

2.anémisge	dè	sítōy	phármaka	lúgr'	(Od.X.235-6)
up-mixed-she	pt	food	drugs	vile	
PV ana-		m.s.dat	n.pl.acc	n.pl.acc	

in the food she mixed baneful drugs

baléei	d'	en	phármaka	sítōy	(Od.X.290)
throw-she	pt	in	drugs	food	
future		PV (sep)	n.pl.acc	m.s.dat	
she will cast drugs into the food					

en	dé	te	phármakon	hēke	(Od.X.317)
in	pt	and	drug	put-she	(no oblique)
PV(sep)			n.s.acc	past	
and in (it) she put a drug					

3.toĩsin	d'	Antínoos	metéphē	(Od.XXI.140)
them	pt		with-spoke-he	(PV meta- with)
pl.dat		m.s.nom	past	
Antinous spoke among them				

metà	dè	mnestērsin	éēipen	(Od.XXI.151)
among	pt	woosers	spoke-he	
PV(sep)		m.pl.dat	past	(PV used as preposition)
he spoke among the woosers				

toĩs	d'	Agéleōs	metéēipen	(Od.XXII.131)
them	pt		among-spoke-he	
pl.dat		m.s.nom	past (PV meta-)	
Agelaus spoke among them				

4.alókhōy	d'	epì	mūthon	étellen	(Od.XXIII.349)
wife	pt	on	charge	place (PV epi)	
f.s.dat		PV(sep)	m.s.acc	past	
placed a charge on (his) wife					

soi	dé,	gúnai,	tád'	epitéllo	(Od.XXIII.361)
thee	pt	wife	these	on-place-I	
s.dat		f.s.voc	n.pl.acc	past (PV epi-)	
to thee, wife, I charge these things					

5.eis	ōpa	idésthai	(Od.XXII.405)
in	face	to-look	(PV eis used as a preposition)
PV(sep)	f.s.acc	infin	
upon (his) face to look			

méga	eisíden	érgon	(Od.XXII.408)
big	looked-she	work	
n.s.acc	past (PV eis-)	n.s.acc	
(she) looked upon a great work			

6.tōy	ken	hám'	hespoímēn	(Od.XIX.579)
him	pt	with	would-go-I	
m.s.dat		postpos	optative	
with him I would go				

háma	tēy	ge	kaì	amphípoloi	kíon	(Od.XIX.601)
with	her	pt	and	maids	went-they	
prep	f.s.dat			f.s.nom	past	
with her also went (her) maids						

7.ekheúato	pónton	épi	(Il.VII.63)
was-spread	sea	over	
past.pass	m.s.acc	postpos.	
was spread over the deep			

keládont'	epi	oínopa	pónton	(OdII.421)
whistling	over	wine-dark	sea	
participle	prep	adj.acc.	m.s.acc.	
whistling over the wine-dark sea				

A New Typology

The development of a system of prepositions out of the ancient preverbs led to revolutionary results in the Indo-European languages. Since these particles had no morphology of agreement, their relationship to the noun eventually became marked, as we have seen, by configuration, by pre-position to nouns in oblique cases which, being themselves used adjectivally or adverbially in the sentence, could be appropriately modified by such adverbial particles as these early preverb/prepositions.

Once this fixed order became established, however, further possibilities were opened up. Where both noun and preposition had adverbial values, it was profitable for the preposition, as the more truly adverbial element, to shift from being modifier of the noun to become instead head of the total phrase, a very easy and natural step when one adverbial element is predicated of another. In other words, instead of the preverb-cum preposition modifying the adverbial noun (with its oblique case), the adverbial noun becomes the modifier of the true adverbial element, the preposition that had originally been a preverb.

When this happened, and the noun could become a mere adjunct that clarified, with its lexical content, the function of the preposition, the oblique cases of the noun could become redundant after a preposition, leading to total loss of nominal case morphology in languages such as English, French, Spanish, Italian. In Rumanian, for example, which still distinguishes a Nominative-Accusative case from a Genitive-Dative case, only the Nominative-Accusative case is found with simple prepositions. Those prepositions that in Latin governed Genitive, Dative and Ablative now are followed by Nominative-Accusative case:

8.Rum.	profesorului = of/to the professor (Gen-Dat)
	cũ profesorul = with the professor (Nom-Acc)
Latin	cum professore = with the professor (Ablative)

Even though elements of case have survived in the nominal system of this Romance language, these remaining case distinctions are irrelevant to the use of simple prepositions, all of which are followed by the base form of the noun.

This final step, where the noun begins to lose the oblique case that had originally allowed it to play a functional role as an adverb, is a very important evolutionary step for the Indo-European languages. It means that the noun, no longer morphologically marked for an adverbial role, begins to enter into a special configurational relationship with the preposition, whereby the preposition plays the role of grammatical and functional element, to which the noun adds a further lexical content.

It is in this way that a tightly knit and functionally indivisible phrase made up of two elements, one basically grammatical and the other basically lexical begins to take over functions that were performed in the earlier forms of Indo-European by a single word, in which the stem formed the lexical element to which the suffixed inflection added the grammar. Once the possibilities of this procedure were realized, a typological revolution overtook certain of the families of the Indo-European stock. Person and number were extracted from the verb and preposed in the form of subject pronouns; in this way Latin amat was replaced by French il aime. New verb forms were created in which the remaining grammar of the verb - tense and mood - were subtracted and preposed in the form of verbal auxiliaries, creating such forms as the Romance and Germanic perfectives and the English progressive. It was Gustave Guillaume (1938, 1964:73-86) who first noted that in these verbal combinations it is the auxiliary that carries the grammar while the verbal supplies the lexical element.

In the noun the loss of the case morphology was paralleled by the development of article systems; it is those languages that have reduced the case system to four cases (or less) that have developed article systems (Hewson 1972:14-15). In this new eventuality the strategy that had been developed in the historical genesis of the prepositional phrase was further exploited: a phrasal noun was created in which the article became the functional or grammatical element, and the substantive became simply the lexical content. This situation shows most clearly in French, where the article carries all the morphological markers, and the noun (in oral French) carries none, is unmarked even for number.

Consequently it is possible to draw up a list, as follows, of the phrasal constructions that have been developed and adopted by the Indo-European languages over a period of some three thousand years, beginning with those that are found universally in these languages, and ending with those phrasal constructs that are limited to certain of the IE families.

<u>GRAMMATICAL ELEMENT</u>	<u>LEXICAL ELEMENT</u>
preposition	nominal
auxiliary	verbal
subject	verb
article	noun

This typological shift opened the way to further developments, such as the emergence of a distinctive passive voice, exploiting the use of auxiliaries; the older forms of Indo-European show only a contrast between Active and Medio-Passive where Middle (e.g. Latin deponents) and Passive share a common morphology. This in turn led to the creation of a distinctive Middle Voice in Romance, where an original reflexive pronoun se has become a marker of Middle voice in verbs that cannot possibly be reflexive, such as Spanish irse, Italian andarsene, French s'en aller, to go off (cf Latin proficisci, to set out).

The new phrasal noun, the unity of which was marked by strict ordering, also led to equally strict ordering of the modifiers of the noun. In the Germanic languages the ordinary adjectives were positioned between article and noun (i.e. inside the phrasal noun), while the Romance languages exploited the two contrastive positions (inside vs. outside the phrasal noun) to develop contrasts of meaning: *le même jour* = the same day; *le jour même* = the very day, a strategy that would have been impossible in Latin. In this way we may distinguish between a phrasal noun, a tightly bound unit which runs from article to substantive, and a noun phrase which would include the above plus any other adjuncts such as postposed adjectives.

We may trace this typological revolution, which has massively changed the face of Indo-European from its earlier highly inflected forms to modern configurational forms such as English (the inflections of which can be counted on the fingers), to the early emergence of the preposition as a distinctive part of speech. It is an indication that a successful development, once discovered, may be exploited over and over again in the historical evolution of a language or a language family.

REFERENCES

- Chantraine, Pierre. 1963. Grammaire homérique. Paris: Klincksieck.
- Guillaume, Gustave. 1938. "Théories des auxiliaires et examen des faits connexes". BSLP 1938.
- Guillaume, Gustave. 1964. Langage et science du langage. Paris: Nizet; Québec: Presses de l'Université Laval.
- Hewson, John. 1972. Article and Noun in English. (Janua Linguarum, series practica 104). The Hague, Paris: Mouton.

Problems in the Morphological Analysis of Sign Language

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The techniques of morphology have been applied to the analysis of sign languages over the past few years. However, problems have remained owing to the fact that those techniques were developed for analyzing oral languages; typical problems are the non-linear nature of sign languages, such as simultaneity which involves not only the upper limbs engaged in signing but also the gaze and head tilt. The purpose of this paper is to further explore the problems that seem to characterize sign languages and to attempt to come up with a morphological analysis of a particular sign language called Japanese Sign Language (JSL) so as to demonstrate the difficulty involved.

Forms in Sign Language

In Peng (1978:9-44) I mention four characteristics among others for sign language: they are simultaneity, reversibility, directionality, and reduplication. Of them the first three cannot be found in any oral language; that is, they are unique to sign language. JSL is full of signs with these characteristics: e.g., "(a group) is split into two" where SPLIT + TWO are signed together (by placing the interior edge of the right hand [Peng 1976:189] between the left index and middle fingers); GOOD (in the sense of skillful and dexterous) is signed with "right palm going down on left arm" while BAD (in the sense of clumsy) is signed with "right palm going up on left arm"; SAME is signed with "the hands one foot apart, palms up and parallel with the body, while pinching the thumb and the index together with the remaining fingers folded," but when the signer and the receiver are facing each other and the topic of conversation is concerned with them, such that an agreement between them must be reached, SAME is, then, signed with the line between the two hands perpendicular to the body, other things being equal; and GET MARRIED versus MARRIAGE which are signed with the right thumb and the left little finger coming together, but in the case of GET MARRIED, the thumb and the little finger tap each other twice, while in the case of MARRIAGE no repetition after the contact is made. These problems will become more apparent on three counts: (1) when movement and configuration are simultaneously articulated it is difficult to separate them; (2) as some movements are meaningful and some are not, their distinction is difficult; and (3) because the body (i.e., torso or even face) relative to a sign may or may not be segmented as part of a morph or even a morph itself, the participation of the body as a significant part in a morphemic cut is not always obvious in citations, not to mention that it can more often than not be realized only in a context of other signs or even of situation, e.g., when the torso is used as the first person pronoun in relation to other signs or when facial expressions are

employed purposely as part of a sign discourse. For instance, in Danish Sign Language, the pronoun ME in BOY WALKS PAST ME 'the boy passes me' is represented by the signer (not by a separate sign), but the noun EXAM in BOY EXAM PASS 'the boy passes the exam' is represented by a separate sign. The same is true of JSL.

Somewhat similar situations with respect to simultaneity may also be found in oral language, such as English, e.g., advice/advise or offense/offend for noun versus verb or difference/different or competence/competent for noun versus adjective, where the change in voicing or manner of articulation makes the differences. In such cases, linguists are perplexed and often vary in their treatment of these forms.

Be that as it may, with oral languages it is easy to follow Nida's Principle 1, which says, "Forms with a common semantic distinctiveness and an identical phonemic shape of the forms in all their occurrences constitute a single morpheme." But when this principle is applied to the analysis of JSL, it is not too difficult to discover that morphemes of this kind do not exist in JSL, because forms in JSL do not or seldom hold the same shape even though many of them are isolatable. Perhaps, the lack of non-variable morphemes is a characteristic of non-inflecting sign languages, such as JSL, whose lexicon is still not yet fully developed. But I am not here to discuss the typology of sign language. What I intend to do is to rely on other principles, insofar as they are applicable, in order to relate them to the concept of Complementary Distribution so as to establish morphemes in JSL.

The second principle in Nida's Morphology says: "Forms which have a common semantic distinctiveness but which differ in phonemic shape ... may constitute a morpheme, provided the distribution of formal difference is phonologically definable." When this principle is applied to JSL, interestingly enough, quite a few morphemes can be identified, except that what is meant by "forms" must now be defined; for no sooner is this principle applied than it becomes clear that "forms" in sign language differ significantly from "form" in oral language on the basis of which the principle was originally formulated.

Note that every sign language has two important properties, configuration and movement. Although oral language may be construed to have both properties too, in articulatory terms, it is more common to deal with the sound waves that come from the articulatory configurations and movements than to deal with the movements themselves. It is only when sound waves of speech are interpreted as articulation, i.e. segmented discretely, that they have "configurations" of some sort, which can modify or interrupt sound waves in the vocal tract. In sign languages, however, there are no sound waves to segment but only body parts that constitute configurations and movements. It is probably for this reason that configurations and movements are more clearly differentiated in sign language, because they are visually perceived. This is where the definition of "forms in sign

language must begin. Configurations and movements must somehow be made discrete, a process not too difficult for some configurations, but one which may become quite involved for movements and even extremely difficult when configurations and movements intermingle in the formation of a sign, as in GET MARRIED.

Let us see now how far Nida's Principle 2 can be applied to signs in JSL. The following is a set of lower numerals in JSL that are signed with configurations only [i.e., there is no movement so that the action of the sign may be considered presentation or display]:

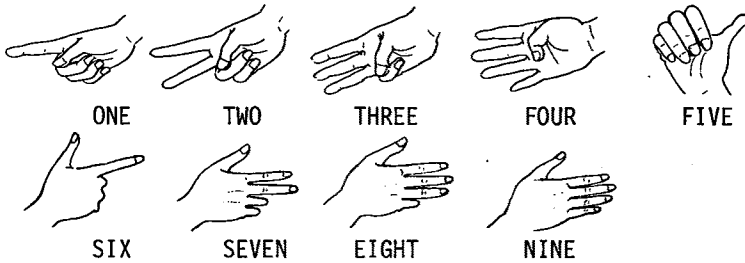
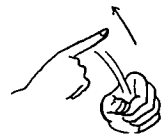


Figure 1.

Note that these configurations differ only in the handshape; the position in which each configuration occurs remains constant. When they are employed in a different environment, however, as in 100, 200, 300, etc., two things happen: an additional configuration is formed by the left hand and the right hand configuration now moves.

Figure 2. 100



Given these two sets of data, there is no problem in identifying the meaning of each right-hand configuration in Figure 2, except that the two right-hand configurations of each pair (i.e., ONE/100, TWO/200, etc.) are not exactly the same. Nor is there a problem to determine the meaning of the left-hand configuration: Tentatively it may be called "the third digit" (in orthography it corresponds to the two zeros [00]). But there is a problem that must be solved -- the added movement. In other words, is this movement part of the morpheme that is represented by the right-hand configuration or not? If so, then there are two forms in each of the numeric morphemes (ONE, first number, and ONE, counter of hundreds) and the forms have two different shapes, one of which contains the movement that is also recurrent. If not, then the movement is a separate form whose morphemic status and meaning must be determined on different grounds. But note how in the environment of the left-hand configuration (i.e., the fist) the shape of the right-hand is predictable: it is being made up of a configuration of the finger(s) and the accompanying movement. This observation seems to suggest that the movement can be plausibly assigned to one of the two forms for each of the numeric morphemes.

However, in terms of recurrence of the movement (coupled with the fact that the form in the context of hundreds now deals with the hundreds digit), the movement itself does carry some kind of meaning, which may be identified as 'multiplied by'. In this sense, then, the right-hand movement may be considered as a separate form that constitutes a morpheme in itself. From these arguments it follows that there exists a submorphemic problem on account of the identification of forms. Suppose that the following set of signs is added:



Figure 3.

Observe now that all these numerals are signed with the right-hand, using configurations that resemble those of the forms in Figure 1, except that there is also an accompanying movement (i.e., flexion) of the finger(s). Unlike the movement in Figure 2, the flexing in Figure 3 poses no difficulty as to its meaning, which is 'the tens digit'. This by no means implies that no alternative solution is feasible. One such alternative is to include the movement in each form as part of the shape. If this is the case, then the form of each sign in Figure 3 constitutes a separate morpheme, whereas in the former solution the flexional movement must be extracted, as it were, as a morpheme in itself, so that the configuration (without the flexion) can become a variant form of its corresponding numeric morpheme established in Figure 1.

What this means is that if the flexional movement is treated as part of each of the independent forms, which constitute separate morphemes having nothing to do with the morphemes established in Figure 1, the shape of each such form is a composite shape comprising a hand configuration and a flexional movement of the finger(s). These are fused in ways similar to a portmanteau word in oral language (e.g., smog, motel); but if the flexional movement is identified as a separate morpheme, it must be regarded as having several variant forms whose shapes are determined by the number of fingers involved. In this case, 10, 20, 30, etc. are each made up of two morphemes that may be said to be "suppleted" in ways comparable to du and des in French and better and best in English, although in the morphemic analysis of oral language there is room for argument as to whether "portmanteau" and "suppletion" are two different names for the same thing or refer to two separate morphemic processes. Personally, I prefer the "suppletive" to the "portmanteau" solution of the signs in Figure 3 on the ground that there are many similar cases in JSL that have been discussed elsewhere (Peng 1985:230-8). Let me now turn to more difficult signs below.

The Problems

So far I have not dealt with signs that really cause problems, although a couple of submorphemic problems were identified. The

following set of signs is a case in point here:

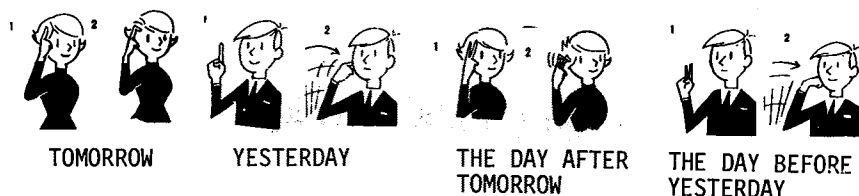


Figure 4.

Observe that in Figure 4, although they are all one-hand signs, each right-hand configuration is no longer signed in front of the chest (or torso) but on the side above the ipsilateral shoulder. Observe further that the finger(s) can face forward or backward and at the same time perform a bending (i.e., flexional) movement. But the number of fingers remains identical to that of the corresponding numeric morphemes identified earlier; that is, TOMORROW and YESTERDAY have the one-finger configuration, and so on.

Here, two problems are worthy of consideration. First, attention must be paid to the position of the right-hand. Note that whereas in the numeric morphemes the hand position is "free," in the TOMORROW/YESTERDAY series the hand position is "fixed." The problem, then, is whether or not the position of the right-hand is part of the form that is made up of one-hand configuration. If so, can it be construed as environmentally determined? In the hundreds series the hand movement is predictable, but the position in the day series has no other sign than the hand configuration itself. If not, can the hand configuration occur elsewhere with the same semantic distinctiveness? The answer is negative; thus, the solution to the first problem seems to be that the position of the right-hand is best regarded as part of the form whereby its shape is not environmentally but morphologically determined. However, there remains a notational problem to which I shall return further below.

The second problem is whether or not each finger flexion (forward or backward) is extractible as a separate form eligible as a variant of another morpheme. Observe in this connection that the two finger flexions are opposite to each other, meaning 'future' and 'past' respectively, and that variants also exist in each type of flexion, conditioned by the number of fingers involved. But two other variants of the flexional movements also exist in the forms of these signs:



Figure 5.

Note now that the hand configuration in each case is a palm and the movement is the extension and flexion, respectively, of the forearm at the elbow held up to shoulder height. In view of the recurrence of movements and their associations with the semantic distinctiveness of 'future' and 'past', the finger flexions in Figure 4 may thus be extracted as the variant forms of each such movement thereby constitute a separate morpheme. This solution, at least in part, is based on the idea of "homosigns" comparable to homophones in oral language, except that their domains are not quite comparable. Nonetheless, if the idea of "homosigns" is taken into consideration, the morphemic solutions of the above variability of numeric forms and finger flexions in JSL may be said to follow Nida's Principle 5:

Homophonous forms are identifiable as the same or different morphemes on the basis of the following conditions: (1) Homophonous forms with distinctly different meanings constitute different morphemes; and (ii) homophonous forms with related meanings constitute a single morpheme if the meaning classes are paralleled by distributional differences, but they constitute multiple morphemes if the meaning classes are not paralleled by distributional differences.

The Need for A New Metalanguage

Nida's principles seem to have worked in the above examples inasmuch as the task is limited to identification of morphemes in signs where no further analysis is required or even attempted. But once such an attempt is made, more serious problems arise, one being the problem of notation for each morpheme identified, not to mention the problem of formulaic representations. Let me, now, discuss these problems below.

First, I should like to call each sign in Figure 1 a Base on account of its function in the rest of the signs in the other examples; that is, it is to each such base that other components are added in order to create new signs -- in terms of both form and meaning. I shall, therefore, use the notations 1, 2, 3, 4, etc. to represent the bases -- each of which is a morpheme -- in Figure 1. These morphemes are, then, referred to as Single-Base morphemes. However, when signs in Figure 2 are considered, it is found, as has been discussed, that two components are added -- a left-hand configuration and right-hand movement -- which also condition the right-hand configuration in each sign. I shall call the left-hand configuration -- the fist -- a minor (or supplementary) base (in contrast to the right-hand configuration which is the major or dominant base) and the right-hand movement, a radical. A radical is, therefore, defined in the present context as a "semantically" significant movement of the dominant base. It follows that each sign in Figure 2 is a double-base morpheme with a radical that is submorphemic in nature -- submorphemic being that it is limited to this set of data and simultaneously executed with the base.

In keeping with this line of thinking, the signs in Figure 3 can be easily seen as Single-Base morphemes, except that each of them has a finger movement -- representing the tens digit -- which is another

radical that always accompanies the base in each morpheme. The same is not true of the signs in Figure 4, however. This is because the signs in Figure 4 must be executed in a fixed position relative to the torso -- on the side above the ipsilateral shoulder. This fixed position must then appear in the description, which I shall call L (standing for Location); but it has no semantic value other than supporting the sign in each case. What is important, however, is the movement of the finger(s) -- forward and backward -- in each sign, which means that there are now two different (i.e., opposite) radicals in those signs and that although each sign in Figure 4 is a Single-Base morpheme, it is supported by an L and accompanied by a radical that moves either forward or backward.

Second, having provided the metalinguistic notions to the signs in Figures 1 through 4, I should proceed to represent them in formulaic fashion so as to capture the common properties among them. In addition to the notations of 1, 2, 3, 4, etc. I shall use R to stand for Radical with a subscript to indicate its manner of movement. For instance, Ru stands for Radical with an upward movement; Rf for Radical with a forward flexion; Rb for Radical with a backward flexion; and Rs for Radical with a sideways flexion. To these I shall add F, which stands for Fist as a minor base to complete the notations for the signs in Figures 1 through 4, since I have already mentioned L. The morphemic analysis of the signs just mentioned may thus result in the following way:

{1} {2} {3} {4} {5} {6} {7} {8} {9} Figure 1.

{F1Ru} {F2Ru} {F3Ru} {F4Ru} {F5Ru}, and so on. Figure 2.

{1Rs} {2Rs} {3Rs} {4Rs} {5Rs}, and so on. Figure 3.

{L 1Rf} {L 1Rb} {L 2Rf} {L 2Rb}, and so on. Figure 4.

What about the signs in Figure 5? Or the signs mentioned at the beginning -- GET MARRIED vs. MARRIAGE, etc.? I shall now attempt to analyze them in terms of the metalanguage created above.

First, I must explain that FUTURE and PAST are signed with a palm facing either forward or backward before the forearm is extended or flexed, respectively. Thus, each sign is a Single-Base Morpheme with a Radical for sure. However, it must be signed on the same side of the palm used relative to the torso; that is, it cannot be signed on the opposite side. What this means is that an L must be present; since this L indicates "ipsilateral," it may be taken to be the same L as in Figure 4. So, if P stands for 'palm', Re for Radical with an extending movement (of the Base), and Rb for Radical with a backward flexion of the Base, FUTURE may be represented formulaically as {L PRe} and PAST as {L PRb}.

Second, it should be pointed out that none of the signs analyzed above involve the characteristic of Directionality, although that of Simultaneity has been accounted for at least in part. So, let me now tackle the signs SAME (which was mentioned at the beginning) and DIFFERENT. These two signs employ two identical hand configurations in

each; namely, SAME "the hands one foot apart, palms up and parallel with the body, while pinching the thumb and the index together with the remaining fingers folded" and DIFFERENT "the hands one foot apart, with the thumb and the index of each hand sticking out sideways, while the remaining fingers are folded, and then each hand makes a semicircle twist in the opposite direction of the other." The feature of Directionality comes in whenever needed or called for as the signer identifies the person he/she agrees (SAME) or disagrees (DIFFERENT) with. I shall, thus, call the two hand-configurations in each of these signs a Twin-Base (as distinct from a Double-Base), because neither configuration of the hand in each of these signs has any meaning. But coupled with such a Twin-Base are (1) a Radical, which is the hand-movements of each sign, and (2) the Direction the hands are associated with, which may mean 'between you and me' or 'between you and him', depending on whom the signer wants to refer his/her opinion to. If T is set up to stand for Twin-Base, then it is important to note that its Radical pertains to both hand-configurations, which means that R must appear on both sides of T. If I also differentiate Rp -- for Radical with the pinching of thumb and index -- from Rt -- for Radical with the twisting of thumb and index -- then SAME may be morphemically represented as {RpTRp} and DIFFERENT as {RtTRt}. However, these representations are only "neutral" in that no Directionality is involved. But, unlike L which has no semantic value, Directionality carries an important value which must be added when the signs are translated into an oral language. To capture this feature, I shall designate D to stand for Directionality and assign it to the right of the Base and Radical. Thus, SAME and DIFFERENT now appear morphemically as follows: {RpTRp D} and {RtTRt D}, respectively.

The above presentation now leaves signs like GET MARRIED and MARRIAGE unanalyzed. Since they involve a much more complicated process, one that may be called Compounding because each such sign is made up of two morphemes, I shall not take them up here on account of time and space. This is not tantamount to saying that they fall outside the purview of sign morphology; quite to the contrary, many signs of this sort in JSL are processed derivationally; and they have similar structures, viz., each consisting of a Base with or without a Radical. For this reason, I shall tackle them on the next occasion.

Conclusion

On the basis of the preceding discussion, it is of interest to conclude that because the problems of sign language morphology differ from those of oral language morphology, some kind of modification is in order. I have proposed as a first step to deal with the problems of sign language morphology as follows: (1) Since hand-movement always accompanies hand-configuration, if it occurs -- although it may have a semantic value, it is treated as a submorphemic entity which, albeit given a separate label, is called Radical -- it is regarded as a part of the main morpheme that is called Base. This analysis is in keeping with the composition of a Chinese character which is said to consist of a radical and a base, e.g., 猿 'ape', 猴 'monkey', and 狼 'wolf', where 犭 is the radical that means 'animal' and the base

is, respectively, 猿, 猴, and 狼, each of which has a phonetic value that approximates the pronunciation of ape, monkey, and wolf in Mandarin Chinese; (2) I have also treated the location (L) as a part of the morpheme where it is mandatory -- without which the sign cannot occur -- although L has no semantic distinctiveness; and (3) I have added the dimension of Directionality to the analysis of sign morphemes when and only when it is pertinent, even though Directionality is not assigned the status of a morph because it is treated as another submorphemic feature without a full-fledged morphemic status.

That these modifications are necessary is due primarily to the fact that a Radical, which manifests itself as a movement in sign phonology, is always executed with a hand-configuration, when and if it occurs, -- even though hand-movement is only a part of Simultaneity in JSL -- and that location (L) which may be defined as the position of a sign relative to the body may or may not be mandatory when a sign is executed and, finally, that Directionality is another feature that carries a semantic distinctiveness but does not appear in every sign -- probably only in verbs. What this means is that conventional morphemic analysis, which is based on oral languages, cannot be applied directly to any sign language, although one could force such an application, in which case, it would fail to capture the important characteristics of sign languages and would simply copy oral languages without any theoretical justification for the failure even though it is known that sign languages, especially JSL, differ significantly from oral languages.

There are other characteristics, such as Reversibility and Reduplication, that have yet to be accounted for in sign language morphology. But I believe the same modifications are needed to deal with signs that contain those characteristics. Such modifications are part of the new metalanguage that I have purposely created in order to handle not only sign language morphology -- which has been demonstrated above -- but also sign phonology and sign language syntax which will be presented on a different occasion. For the time being, let the following schematic representation suffice as the overall structure of some of the morphemes in JSL, where Base is understood to vary from Single-Base to Double-Base and then to Twin-Base and Radical is understood to occur with both hand-configurations of a Twin-Base and, finally, L is understood to be obligatory to many but not all signs in JSL even though it has no semantic distinctiveness.

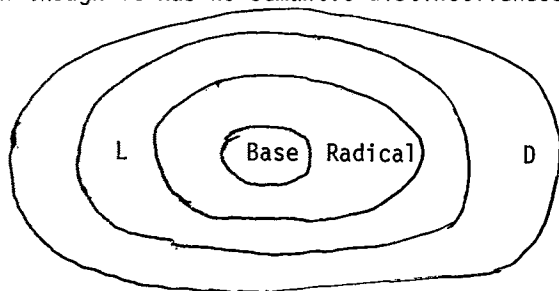


Figure 6. Schematic Representation of Morphemic Structure in JSL.

References

Nida, Eugene A.

- 1949 Morphology: The Descriptive Analysis of Words. Second Edition. Ann Arbor: The University of Michigan Press.
- 1976 "Sign Language and Its Notational System," in The Second LACUS Forum 1975, pp. 188-99, Peter A. Reich (ed.), Columbia, South Carolina: Hornbeam Press, Incorporated.
- 1978 "Sign Language and Culture," in Sign Language and Language Acquisition in Man and Ape, pp. 9-44, Fred C. C. Penq (ed.), AAAS Selected Symposium 16, Boulder, Colorado: Westview Press.
- 1985 "Some Morphological Considerations of Japanese Sign Language," in Sign Language Research '83, pp. 226-38, William Stokoe and Virginia Volterra (eds.), Silver Spring, MD.: Linstok Press, Incorporated.

COGNITIVE CONSTRAINTS ON THE FORM AND FUNCTION OF RELATIVE CLAUSES

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Introduction

If English is viewed from a strictly grammatical perspective, it would appear that relative clauses can be attached to NPs playing virtually any grammatical role. Similarly, the relative pronoun within a relative clause can in principle function in any grammatical role. In spite of these possibilities, however, English texts exhibit a skewedness in terms of both the distribution and forms of relative clauses. Although there are minor differences depending on a particular text's style or genre, an overall tendency is observed for relative clauses to be attached to the final NP of the host clause and, moreover, for the relative pronoun to serve as the grammatical subject of the relative clause.

In this paper, evidence demonstrating such distributional tendencies of relative clauses is first reviewed, with an eye toward an explanation based on processing considerations. In particular, it will be noted that two sentence-based constraints, which we call CLOSURE and NORMAL FORM, play important roles in explaining the distributional facts. Next, evidence is offered from an experimental study in which both written and oral narrative descriptions have been collected. It will be shown that these results provide additional empirical support for the operation of the two local constraints. In addition, however, it will be argued that a more global discourse factor, the GIVEN-NEW constraint, is also required to explain the information distribution in main and relative clauses. It is concluded that both principles of discourse cohesion on the one hand and local processing constraints on the other are required to explain the forms and distributions which relative clauses exhibit.

Written Texts

Written texts can provide a wealth of linguistic data. At the same time, however, such data must be carefully assessed since they can differ greatly in terms of such factors as style, purpose, and degree of formality (register). Prideaux and Baker (1986) examined text data from five different sources, three fiction and two non-fiction. For each relative clause, information was tabulated as to the location of the relative clause, the form and function of the relative pronoun (including the $\emptyset$ form), the definiteness and grammatical function of the host NP, and several other factors as well. It was found throughout all the sources

that there was a statistically significant tendency ($p < .001$) for a relative clause to be attached to the final NP of the host clause. It was also found that, regardless of the type of text, the relative pronoun tended to function as subject significantly more often (again, $p < .001$) than as any other grammatical role.

In order to account for these striking tendencies, recourse was made not to mysterious properties of English grammar but rather to the two processing principles of CLOSURE and NORMAL FORM. These two principles are not, it is argued in Prideaux and Baker (1986), limited just to language processing, but instead are best conceived as cognitively based information processing principles also having relevance to such other domains as visual perception and even music perception.

CLOSURE can be conceived of as a gestalt principle which forces the integration of information into a coherent whole as rapidly as possible (see Bever, 1970; Kimball, 1973; Slobin, 1973; Frazier, 1978, Prideaux & Baker, 1986). In language processing, CLOSURE requires that the particular unit (clause, phrase, etc.) being processed should be completed as early as possible, thereby permitting processing resources to be reallocated to the next grammatical chunk. Among the conditions which must be satisfied for CLOSURE to operate on a clause, perhaps the most important is that the "argument structure" of the predicate (i.e., verb or adjective) must be satisfied. For example, if a particular clause contains a verb requiring an agent and a patient, the clause cannot be closed off until NPs serving these two roles have been determined. It follows from CLOSURE that if a clause is interrupted internally by another (subordinate) clause, processing will be slowed down, since the processing of the superordinate clause must be temporarily suspended while the subordinate clause is attended to. Thus, from CLOSURE the prediction follows that sentences containing interrupting relative clauses should be more difficult to process, and accordingly less frequent, than sentences whose relative clauses are final. And indeed this is exactly what the frequency data cited above suggest.

In order to explain why a relative pronoun tends to be subject, the NORMAL FORM principle can be invoked. This principle states roughly that the least "marked" forms are the most expected, the easiest to process, and the most frequent (see Bever, 1970; Slobin, 1973; Prideaux & Baker, 1986). Within an English relative clause, the relative pronoun is always in clause-initial position. Since the unmarked word order for English is SV(0), if a relative pronoun functions as subject, the word order within the relative clause is also the normal SV(0). However, if the relative pronoun is not subject, the resulting word order is a non-canonical, "marked" order. Accordingly, the NORMAL FORM principle predicts that relative pronouns should tend to function as subject in English to preserve canonical word order.

While it was concluded in Prideaux and Baker (1986) that the locations and forms of relative clauses in English were in part a product of two specific processing principles, no attention was paid there to the differential functions served by main versus relative clauses. It has, however, been suggested by Bever (1970) and others that one important function of a relative clause is to provide background or given information, in contrast to the function of the main clause, which provides new information. The GIVEN-NEW constraint, which has been widely explored in the psycholinguistic literature, states that given information is systematically separated from new information by such devices as alternative grammatical structures and special intonation. While considerable empirical support for the operation of this constraint exists for the distribution of given and new information within a simple clause (see, for example, Clark & Clark, 1977; Smyth, Prideaux, & Hogan, 1979), relatively less such evidence is available for it in complex sentences. Accordingly, two experimental studies were undertaken to obtain information on the form and distribution of relative clauses as well as information on the distribution of given and new information within the two types of clauses.

Experimental Studies

The two studies reported here both employ basically the same methodology, but differ in terms of whether the data gathered were in written or oral form. The methodology resulted from our desire to collect production data from several subjects who all responded to the same stimulus.

The stimulus material consisted of a short (eight minute) silent, black and white TV clip which all subjects saw twice. The material on the tape was a sequence of scenes in a bar, in which several independent events took place. The subjects' task was to provide a description of what they had seen, in either a written or an oral form. They were asked to avoid being film critics and focus attention on a description of the events such that a person reading or hearing the description would have a fairly good idea of what had taken place. The TV clip was silent since we wished to elicit as much descriptive language as possible, thereby inducing subjects to use several relative clauses. In fact, this tactic worked quite well.

In the first experiment, 25 subjects provided written descriptions of the bar scene. All were native speakers of English. Every relative clause within each subject's description was analyzed, and for each a tabulation was made of the location of the relative clause (internal or final), the grammatical function of the relative pronoun, the informational status (given or new) of the relative clause, the definiteness of the host NP (the NP to which the relative clause is attached), whether the relative clause was restrictive or non-restrictive, and the number of potential host NPs within the clause where the relative clause was found.

It was relatively straightforward to tabulate some of this information. For example, it was easy to determine whether or not a particular relative clause interrupted its host clause, to establish the grammatical function of a relative pronoun, to determine the definiteness of the host NP, and to count the number of potential host NPs within a host clause. However, the determination of the given-new status of a relative clause was often less easy. That given information can range over a variety of types is well known (see, for example, Brown & Yule, 1983). A clause was scored as containing given information if that information was derivable from the preceding context, was available by inference from the context, or was pragmatically available via world knowledge.

The data from the first experiment, dealing with the written data, are found in Table 1. From these data, an assessment can be made of the roles played by the CLOSURE, NORMAL FORM, and GIVEN-NEW constraints in the locations, forms, and functions of the relative clauses.

In order to assess the roles played by each of the three constraints, separate χ^2 -tests were carried out. To evaluate the role of CLOSURE, more information is needed than simply the total number of interrupting versus final relative clauses, simply because there are more potential internal host NPs than final ones. In order to determine the expected number of final and internal relative clauses for the χ^2 calculation, the number of relative clauses had to be weighted by the proportion of potential final and internal host NPs. Specifically, the expected number of final relative clauses (E_f) and internal relative clauses (E_i) are calculated as follows:

$$E_f = (\text{final host NPs} / \text{total host NPs}) \times \text{total relative clauses.}$$

$$E_i = (\text{internal host NPs} / \text{total host NPs}) \times \text{total relative clauses.}$$

Within the host clauses for the 90 restrictive relative clauses found in the written data, there were 92 final potential host NPs and 159 internal potential host NPs. This yields values of $E_i = 57.0$ and $E_f = 33.0$, with a resulting $\chi^2(1) = 76.6$, $p < .001$. Accordingly, the effect of CLOSURE is highly significant in these data. For the 34 non-restrictive relative clauses, the expected values are $E_i = 25.1$ and $E_f = 8.9$, yielding $\chi^2(1) = 34.7$, $p < .001$. Again CLOSURE is highly relevant.

Turning to the contribution of NORMAL FORM, we find 49 instances where the relative pronoun functions as subject (yielding the normal form SV(0)) and 41 instances in non-normal form. Here, $\chi^2(1) = .71$, a non-significant difference. At first blush, it appears that the NORMAL FORM constraint is not operative, but upon closer examination, a different result emerges. Among the non-normal form relative clauses, a variety of relative pronouns is used. In particular, there are some 15 instances of the $\emptyset$ form,

TABLE 1. WRITTEN RELATIVE CLAUSE FREQUENCY DATA

TYPE	FINAL				INTERNAL			
	-DEF		+DEF		-DEF		+DEF	
	GIVEN	NEW	GIVEN	NEW	GIVEN	NEW	GIVEN	NEW
Restrictive	9	31	23	10	0	3	14	0
Non-Restrictive	0	13	0	11	0	4	0	6

five instances of that, seven cases of which, and 14 other forms (including where, whom, etc.). Fifteen of the relative clauses have the form $\emptyset$ SV(0), which, on the surface, looks exactly like a normal word order clause. Therefore, if the 15 instances of apparent normal form clauses are added to the true normal form clauses, a very different picture emerges: 64 normal form relative clauses versus only 29 non-normal forms. These values yield $X^2(1) = 16.0$, $p < .01$. It would appear, therefore, that if we take the NORMAL FORM constraint seriously as a surface structure constraint, it is relevant in the determination of the forms of relative clauses within these data.

Within the non-restrictive relative clauses, there were 29 instances in which the relative pronoun served as subject, and only five in which it did not. Among these five, none was $\emptyset$. Once again, NORMAL FORM is statistically significant and relevant in determining the form of relative clauses ($X^2(1) = 16.9$, $p < .01$).

Finally, we turn to an assessment of the GIVEN-NEW constraint, and its interaction with the definiteness of the host NP. An examination of Table 1 reveals that definite NPs tend to host given relative clauses more often than do indefinite NPs (78 versus 5), while indefinite NPs host new relative clauses more often than definite NPs (23 versus 12). X^2 -tests reveal that not only are relative clauses significantly more often given than new ($X^2(1) = 19.5$, $p < .01$), but perhaps more interesting, there is a significant correlation between the definiteness of a host NP and its given status ($X^2(1) = 48.5$, $p < .001$). Among the non-restrictive relative clauses, all 34 were new, while there was an even split between the definiteness of the host NPs.

Just as restrictive and non-restrictive relative clauses differ substantially in their syntactic properties, these data reveal that they also differ significantly in their functions. Non-restrictives typically convey new information, although they may be attached equally well to definite and indefinite NPs. The restrictives more often encode given information while at the same time exhibiting a correlation between the givenness of the clause and the definiteness of the host NP. The data also support Givon's

TABLE 2. ORAL RELATIVE CLAUSE FREQUENCY DATA

TYPE	FINAL				INTERNAL			
	-DEF		+DEF		-DEF		+DEF	
	GIVEN	NEW	GIVEN	NEW	GIVEN	NEW	GIVEN	NEW
Restrictive	4	14	35	8	2	4	45	2
Non-Restrictive	0	2	0	4	0	1	0	1

(1979) claim that definite NPs tend to represent given information and indefinites new. The results also reveal the tendency for the givenness of the relative clause to be the same as of the host NP, as indicated by the host's definiteness.

It might, however, be argued that these results are a product of the written rather than the oral modality, and therefore represent processes associated only with the former. For this reason, a second study was carried out in which 17 native speakers of English were asked to provide an oral description of the bar scene. As expected, the oral data were far less tidy than the written data. For example, in the oral descriptions, which were taped and later transcribed, there are many false starts, incomplete clauses, run-on sentences, and mid-clause shifts. There were only eight instances of non-restrictive relative clauses in the oral data, suggesting that the use of non-restrictives is in general a phenomenon of the written rather than oral language. Nevertheless, it was possible to tabulate the same factors for these subjects as for those in the written task. The results are presented above in Table 2.

As was done for the written data, χ^2 -tests were carried out to evaluate the roles of each of the three constraints in the oral data. There were, for the restrictive relative clauses, a total of 256 internal and 90 final potential host NPs, yielding values for the expected internal and final relative clauses of $E_i = 84.3$ and $E_f = 29.7$, and a highly significant result for CLOSURE ($\chi^2(1) = 44.6$, $p < .001$). Thus, for the restrictives, CLOSURE plays a significant role, just as it did in the written data.

Of the 114 restrictive relative clauses in the oral data, 64 exhibited the canonical SV(0) word order, and 50 did not. A test for NORMAL FORM failed to yield a significant result ($\chi^2(1) = 1.7$). However, as in the case of the written data, there were 5 instances of the $\emptyset$ relative pronoun, and when these are added to the other canonically unmarked subordinate clauses, a significant effect for NORMAL FORM emerges ($\chi^2(1) = 5.1$, $p < .03$). These results closely parallel those for the written data, with a strong effect of NORMAL FORM on the restrictive relatives.

Finally, the GIVEN-NEW constraint is also operative in the oral data. Here again we find a preponderance of given over new restrictive relative clauses ($\chi^2(1) = 29.5$, $p < .001$), and at the same time there is a strong correlation between the given status of a relative clause and the definiteness of the host NP ($\chi^2(1) = 41.7$, $p < .001$). This result is precisely that obtained for the written data, and it is clear that the informational status of the relative clauses is not arbitrary, but is in part subject to the important GIVEN-NEW discourse factor.

For the eight non-restrictive relative clauses found in the oral data, six were in final position, supporting CLOSURE, and all were in the SV(0) word order, supporting NORMAL FORM. Here too, as in the written data, all the non-restrictives encoded new information, further reinforcing the conclusion from the written data that non-restrictives play a very different role than restrictives.

Conclusions

While there are some important differences between the written and oral data, perhaps the most surprising result is the overall similarity between the two sets. In both, the role of CLOSURE looms large: relative clauses tend to be attached to final NPs. NORMAL FORM also plays an important role, since the relative clause is more often in the canonical SV(0) word order than in a marked order. It is important to acknowledge here that it is not the subject function of the relative pronoun which is the motivating force, but rather the canonical shape of the embedded clause. Put differently, NORMAL FORM is a surface constraint which results in the relative pronoun being either a subject or $\emptyset$. In both cases, the result is a subordinate clause with an unmarked word order.

The GIVEN-NEW constraint also serves an important function in both the oral and written results. Within both, there is a tendency to attach a restrictive relative clause with given information to a definite host NP and one with new information to an indefinite NP. (We return below to a discussion of the differences between the restrictive and non-restrictive relative clauses.)

In an important sense, Bever's (1970) prediction that subordinate clauses should tend to contain given information is refuted here, for while there are significantly more given than new relative clauses, there is also a significant correlation between the givenness of a relative clause and the definiteness (and therefore potential givenness) of the host NP. These results are at odds with those of Prideaux (in press), who found that subordinate temporal clauses initiated by before or after tended overwhelmingly to be given. This suggests that while the GIVEN-NEW constraint is properly construed as a discourse cohesion device, it is nevertheless used differently in different types of subordinate clauses. Within relative clauses, it is not surprising that there is a kind

of "givenness agreement" between the host NP and its modifier, but within a subordinate adverbial temporal clause, there is no host NP for the clause to agree with, and here most subordinate clauses encode given information.

Perhaps the most striking difference between the two sources of data is that between restrictive and non-restrictive relative clauses. Within the written data, there were approximately one-third as many non-restrictives as restrictives, whereas in the oral data there were very few. This suggests that the use of non-restrictives is very much a function of the modality of expression, resulting in a differential frequency of use of the same device, the non-restrictive relative clause, depending on modality. The differences between the grammatical properties of restrictive versus non-restrictive relatives have long been recognized, differences including both prosodic features and the inappropriateness of that as a relative pronoun within non-restrictives. The present data suggest a functional difference as well: non-restrictives tend overall to encode new information, while the constraints on restrictives are more complex. Non-restrictives behave more like conjoined than like subordinate clauses, although CLOSURE and NORMAL FORM are highly relevant in determining the position and form of both types.

In summary, it has been shown that for both written and oral descriptions, relative clauses are not unconstrained in location, their forms are not arbitrary, and their informational status is not independent of that of their host NPs. An explanation for these properties, moreover, does not arise from the grammar of relative clauses, but instead from those cognitive principles which are employed in the assembly of connected and cohesive discourse. In particular, it has been demonstrated that very specific cognitive processing principles govern the location, form, and functions of relative clauses in both written and oral discourse.

REFERENCES

- Bever, T.G. (1970). The cognitive basis for linguistic structures. In J.R. Hayes (Ed.), Cognition and the development of language (pp. 279-362). New York: John Wiley & Sons.
- Brown, G., & Yule, G. (1983). Discourse analysis. Cambridge: Cambridge University Press.
- Clark, H. H., & Clark, E. V. (1977). Psychology and language: An introduction to psycholinguistics. New York: Harcourt, Brace Jovanovich.
- Frazier, L. (1978). On comprehending sentences: Syntactic parsing strategies. Doctoral Dissertation, University of Massachusetts, Amherst. Reprinted by the Indiana University Linguistics Club, 1979.
- Givón, T. (1979). On understanding grammar. New York: Academic Press.
- Kimball, J. P. (1973). Seven principles of surface structure

- parsing. Cognition, 2, 15-47.
- Prideaux, G. . (in press). Text data as evidence for language processing principles: The grammar of ordered events. Language Sciences.
- Prideaux, G. D., & Baker, W. J. (1986). Strategies and structures: The processing of relative clauses. Amsterdam: John Benjamins.
- Slobin, D. I. (1973). Cognitive prerequisites for the development of language. In C. A. Ferguson & D. I. Slobin (Eds.), Studies of child language development (pp. 175-208). New York: Holt, Rinehart & Winston.
- Smyth, R. H., Prideaux, G. D., & Hogan, J. T. (1979). The effect of context on dative position. Lingua, 47, 27-42.

V

SEMANTICS

SHE DID NOT DARE GROW FAT: OBSERVATIONS ON THE
MEANING OF DARE WHEN FOLLOWED BY THE BARE INFINITIVE

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Among the many peculiarities shown by the verb dare in English one notes that it is capable of being followed by either the bare or the to infinitive. The following pair of examples illustrates this:

- (1a) Neither side dared to strike the first blow.
(Poutsma 1923: 29)
- (1b) Neither side dared strike the first blow.

At first glance such sentences might appear to mean exactly the same thing. The aim of this paper is to show that they do not, and to attempt to characterize what is different about the meaning of dare when it is used with the bare as opposed to the to infinitive, and which makes sentences such as the one cited in the title possible.

Dare is found with the to infinitive only in contexts where it has all the morphological and syntactic characteristics of a full verb:

- with -s ending in the third person singular:

(2) John never dares to contradict his boss.
(Wolff 1978: 375)
- in the infinitive form¹:

(3) [This] stimulated Joe to dare to stay out half an hour later on Saturdays.
(Poutsma 1923: 310)
- with do - negation:

(4) They did not dare to take the road, but they kept it on their left, following its line as well as they could at a little distance.
(Tolkien 1968: 674)

Its use with the bare infinitive however is not similarly restricted. One finds it both when dare has the characteristics of a modal auxiliary:

¹There is no infinitive form of the modals: *to may, *to shall, etc.

- without -s in the third person singular and with inversion for the interrogative:

(5) Dare she ring him at the office? He had asked her never to do that.

(Visser 1969: 1439)

- without -s and with direct negation by not:

(6) Her restlessness wakened her bedfellows more than once. She daren't read any more of Walter Lorraine: Father was at home.

(Jespersen 1931: 12)

and when dare has the characteristics of a full verb:

- with -s ending in the third person singular:

(7) This anomalous status of the educator cannot fail to lower his standing in the eyes of the students. The professor in turn dares not tolerate the influence in his classes of an organization in the policies and standards of which he has no voice.

(BUC E29 1000 1)

- with do - negation:

(8) I don't dare leave Linda alone a minute.

(Jespersen 1940: 175)

The type of usage found in (7) and (8) has been called "mixed" (Kalogjera 1966: 147; Wolff 1978: 375) since it contains a mixture of both modal and non-modal traits. A preliminary conclusion which can be drawn from this first observation of usage is that it appears strictly impossible to explain the use of the bare infinitive after dare by a mechanical syntactic rule: the bare infinitive occurs in both modal and full verb contexts. Faced with a problem such as this, therefore, a rule-oriented approach to language must renounce any attempt at an explanation. This is in fact what the only transformational-generative treatment which touches on this aspect of dare does (Wolff 1978: 373-406). The use of to with full verb dare is simply declared to be "optional" (p. 399) without any evidence to support this claim². I am proposing that the only way to offer a real explanation for infinitival usage after dare is a careful study of the meaning this verb expresses in its use with each version of the infinitive.

Apart from the stock descriptions of dare as expressing the notion of audacity, the only author to propose a meaning-distinction between the full verb dare taking the to infinitive and the auxiliary with modal characteristics taking the bare infinitive is

²Besides the fact that it avoids the problem, this rule is also inaccurate. There are many uses where to is not optional but obligatory. Such is the case in (3) above, as in most affirmative contexts.

Wood (1962: 67). The full verb is analyzed as meaning "have the effrontery" as in:

- (9) He dares to accuse me of dishonesty!

and the modal as meaning "have the courage" as in:

- (10) She dare not say what she thinks.

Besides the fact that the difference between courage and effrontery is not always easy to make per se, closer examination of usage shows that modal dare can evoke effrontery:

- (11) How dare he accuse me of dishonesty?

and the full verb with the to infinitive, courage:

- (12) His voice and hand quivered; his large nostrils dilated; still, I dared to speak: "Sir, your wife is living..."

(Brontë 1848: 622)

Moreover the paraphrase proposed for modal dare does not really correspond to what this verb expresses in (10) above: this sentence does not mean "She does not have the courage to say what she thinks". What dare means here is much better expressed by a paraphrase proposed by another author (Wolff 1978: 397): "it is prohibitively dangerous for her to say what she thinks". This is a most perceptive observation, and it is a shame that the author who makes it is not concerned with the semantics of dare, for it brings us very close to an important fact of meaning for explaining the use of dare with the bare infinitive.

That fact is that dare in its modal uses has a very definite relation in meaning to one of the full modal auxiliaries. The modal auxiliary I am referring to is can, and its semantic relation to dare can be seen in the fact that (10) above can also be paraphrased, with only a slight shift in meaning, by "She cannot say what she thinks." The resemblance between dare and can is even greater in contexts such as:

- (13) Inflation is a problem which dare not be neglected.

(Pullum and Wilson 1977: 785)

- (14) As far back as primitive man, one discovers him directly dependent on the whims and moods of nature. Her laws dared not be flaunted by him.

(LOB F19 5 11)

- (15) Her name dared not be mentioned in Zelig's presence.

(Jespersen 1940: 323)

In these sentences the loss of meaning observed when can or could

(18); direct negation by not in (14) and (15). What is of the greatest interest in a meaning-oriented approach is that when one examines the meaning of dare in so-called "mixed" usage, where it also occurs with the bare infinitive, one finds the same element of "riskability" which is present in its modal uses. Thus in (7) above the context suggests the existence of undesirable consequences which rule out the possibility of a professor tolerating an outside influence in his classes. Similarly in (8) the sentence expresses the practical impossibility of leaving Linda alone a minute because of the high risks of her getting into some kind of mischief.

Herein lies the answer to the question of what dare expresses in the sentence cited in the title of this paper, of which I now give the full context:

- (19) She was bored, and the fact that she was going to be given a diamond wrist-watch did not apparently relieve the boredom. Into the china bowl beside her she pressed, half-smoked, the twenty-seventh cigarette since breakfast. On the table by her hand was a cigarette box and a box of candy. She would have preferred to take a piece of candy. But she had taken four pieces that day already. She did not dare grow fat. Better a Lucky. She reached for one.

(Alec Waugh, Wheels within Wheels)

Dare's meaning here has nothing to do with courage or audacity, since the infinitive evokes an involuntary action. It is rather a case of an event which is quite possible to bring on but only with very undesirable consequences (risks): as the context shows, this sentence refers to a figure-conscious woman and explains why she felt she could not permit herself to have another piece of chocolate - the risk of growing fat was dissuading her. Here, then, dare evokes the idea of riskability as in all its uses with the bare infinitive.

This meaning, observed whenever dare is followed by the bare infinitive, can be contrasted with that expressed when it is followed by the to infinitive. It is in the latter use that the notions of courage or audacity are appropriate as descriptions of the meaning of dare. This is clearest in affirmative contexts, where only the to infinitive construction is possible: in (3) and (12) above, for instance, the idea expressed is that of summoning up the courage to move into action and actually realize the event denoted by the infinitive. In negative contexts, the effect is that

of not moving into action and realizing some action, as in (2) and (4) above.³

There is therefore a common element in the semantics of dare when it occurs with the bare infinitive. In such usage, the speaker evokes the riskability of the infinitive event, that is to say, he evokes the consequences of realizing this event as something which conditions its possibility of realization. We have observed here the similarity of this meaning to that of the modal auxiliary can. And we have also seen how the riskability sense of dare when used with the bare infinitive contrasts with what it expresses in uses with the to infinitive. Having identified what is common to all the uses of dare with the bare infinitive, the next step would be to examine the contrast in meaning between dare used as a full and as a partial modal, that is, between sentences such as (20a) and (20b):

- (20a) We dare not disturb her right now.
 (20b) We don't dare disturb her right now.

While such considerations would be of great interest for situating more precisely the boundary between full verbs and modal auxiliaries, they will have to be left for a later study.

³There also seems to be a stative sense of dare in the negative in which it means "be afraid to" and which is sometimes very close to the notion of riskability. Below are two examples in which the bare infinitive would have been my own personal choice:

- (a) I don't want the police to get on Sue Fisher's trail any sooner than they have to. On the other hand, I don't dare to have her resort to flight because that would be taken as an indication of guilt.

(Gardner 1961: 160)

- (b) Coffee was brought. She wouldn't have it. She said she didn't dare to, because of her insomnia.

(Mulder 1937: 36)

Dropping the to would represent the realization of the actions denoted by the infinitive as out of the question, i.e. prohibitively risky, whereas the original sentences seem to evoke more the state of mind of the person referred to by the subject of dare.

This stative sense may also occur in the affirmative. While no attested instances have been found as yet, the following does not seem impossible:

- (c) He felt it would be best for him to pop the question while he still dared to put it to her.

REFERENCES

- Brontë, C. (1848) Jane Eyre: An Autobiography, London, Smith Elder and Co.
- BUG: Brown University Corpus.
- Collins, P. (1978) "Dare" and "Need" in Australian English: A Study of Divided Usage," English Studies, 59,5: 431-434.
- Gardner, E.S. (1961) The Case of the Spurious Spinster, New York, William Morrow and Co.
- Jespersen, O. (1931) A Modern English Grammar (Part IV), London, George Allen and Unwin.
- Jespersen, O. (1940) A Modern English Grammar (Part V), London, George Allen and Unwin.
- Kalogjera, D. (1966) "On the Use of the Verb Need," Studia Romanica et Anglica Zagrabienia, 21/22: 147-153.
- LOB: London - Oslo - Bergen Corpus.
- Mulder, G. (1937) "The Infinitive after To dare," Neophilologus, 22: 25-48.
- Perkins, M.R. (1983) Modal Expressions in English, London, Pinter.
- Poutsma, H. (1923) The Infinitive, the Gerund and the Participles of the English Verb, Groningen, Noordhoff.
- Pullum, G. and D. Wilson (1977) "Automobile syntax and the analysis of the auxiliaries," Language, 53,4: 741-788.
- Svartvik, J. (1968) "Plotting Divided Usage with Dare and Need," Studia Neophilologica, 40: 130-140.
- Tolkien, J.R.R. (1968) The Lord of the Rings. Parts II and III, London, Unwin.
- Visser, F. Th. (1969) An Historical Syntax of the English Language. Part III. 1, Leiden, E.J. Brill.
- Waugh, A. (1933) Wheels Within Wheels, London, Cassell & Co.

Wolff, R. (1978) "The Verb "Dare" and a Reconsideration of the Treatment of Modals in Generative Grammar," Papers in Linguistics (Edmonton), 11, 3/4: 373-406.

Wood, F.T. (1962) Current English Usage, London, Macmillan.

ON THE SEMANTICS OF MORPHOLOGICAL CAUSATIVES IN KHMER

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0. Introduction. Khmer, or Cambodian, is a Mon-Khmer language spoken in Southeast Asia.¹ Its syntax follows a fairly consistent SVO pattern. In morphology, derivational relationships are quite common while inflection is virtually non-existent.² In Khmer, there are two devices which signal causation. One device, a morphological causative construction, involves affixation on the verb. The most common affix expressing causative meaning, -əm(n)-, is shown in example one³.

- 1) a) mora:slap həxɿ
Mora die already
'Mora died.'
- b) k^hey s=əm=lap mora:
s/o cause-die Mora
'Someone killed Mora.'

The other causative device, a periphrastic causative construction, encodes a caused proposition as a complement within a matrix proposition. In this matrix proposition, the fact of causation is encoded as the central event. In example 1c the compound verb, t^hwx:-ʔəoy, expresses a neutral causative meaning.

- 1) c) k^hey t^hwx:-ʔəoy mora:slap
s/o cause Mora die
'Someone killed Mora.'

Khmer morphological causation involves several affixes. The affix -əm(n)- has already been illustrated in example 1. The prefix bəN- is shown in example 2c⁴. Example 2b gives the corresponding periphrastic causative sentence.

- 2) a) comnwt c^hop mɛ:l siwphəw
Chamnith quit read book
'Chamnith stopped reading the book.'
- b) k^hñom t^hwx:-ʔəoy comnwt c^hop mɛ:l siwphəw
I cause Chamnith quit read book
'I made Chamnith stop reading the book.'
- c) k^hñom bəñ=c^hop comnwt pi: mɛ:l siwphəw
I cause-quit Chamnith from read book
'I stopped Chamnith from reading the book.'

In the morphological construction, the affixed verb takes a simple nominal complement and may not take the sentential complement required in the periphrastic causative. However, as in example 2c, further propositional information may be expressed in adjunct phrases.

These two affixes, -əm(n)- and bəN-, are the most easily recognized Khmer affixes with causative meaning, although a few others have been noted as well. Jenner (1969:p.167) notes that the -əm(n)- infix is the most common affix in the language,

accounting for over half of the derivatives he discovered in his study of Khmer affixation. bəN- is not as common although still well represented. Schiller (1987) observes that causative morphology involving labial prefixes and infixes such as these is an areal feature of the languages of Southeast Asia.

This paper will focus on the semantics of these morphological causatives in Khmer. First it will consider the contrasting semantics involved in the choice of a morphological as opposed to a periphrastic causative construction. Next it will look at semantics internal to the morphological construction itself. Here we will find that the -əm(n)- infix exhibits a range of meanings. Not all of these meanings signal causation *per se*. Nevertheless, the variety of meanings expressed does not fall into a random configuration. All can be placed within a broader semantic domain which includes cause and effect.

1. Contrasting Semantics of Morphological and Periphrastic Causatives. The periphrastic causative construction in Khmer is fully productive. Causative morphological affixation, in contrast, is limited to certain verbs. In those cases in which both constructions are possible, comparison of equivalent sentences using the periphrastic and morphological causatives yields information concerning the semantics signaled in such a choice. Such a contrast has already been introduced without explanation in the examples above. Further examination of these and other sentences will demonstrate that the choice is meaningful and that it involves semantic contrasts along several dimensions. These include the immediacy of the causer's involvement, the thoroughness of the causer's attempt, the causer's intention, the causee's potential to control his own actions, the success of the causation, and the immediacy of the cause and effect in time. Morphological and periphrastic causatives express contrasting meanings with respect to these parameters, and they do so in a systematic manner.

In examples 1b and 1c above, identical English glosses have been given which obscure the semantic differences present. In the morphological version (1b), the agent has killed the patient with his own hand, perhaps using a gun or a knife. He acts purposefully, and Mora dies immediately. In the periphrastic version (1c), the agent kills not with his own hand, but in a less direct manner, perhaps using magic or poison, or breaking Mora's heart. The killing may or may not be intentional. Also, Mora's death may not follow the causation immediately in time but may occur after some delay.

In examples 2b and 2c the distinction involves the intention and immediate involvement of the causer. In the morphological version (2b), the agent has authority and has given Chamnith a direct and intentional order to stop reading. In the periphrastic version, (2c) neither intention or immediate involvement is implied. The agent may have stopped Chamnith from reading by accident. For example, he may have turned out the lights not knowing that Chamnith was there. The cause is mediated. Chamnith stops reading not as a direct result of the causer's action, but as a result of a disturbance that the causer has created.

Intention, thoroughness, and the timing of the causation relative to the utterance time are contrasted in example three.

3) a) kəncək bæk

glass break

'The glass broke.'

b) k^hñom bəm=bæk kəncək

I cause-break glass.

'I break the glass.'

c) k^hñom t^hwx-?əcy kəncək bæk

I cause glass break

'I break the glass.'

In the morphological sentence (3b), the agent acts on purpose. In addition, this is the sentence he would be more likely to utter if he were involved in breaking the glass at the time of utterance. The corresponding periphrastic sentence would be uttered after the fact as a confession or excuse. The periphrastic version allows the possibility that the action is accidental. Both sentences as given above entail that the causation is successful; the glass breaks. Both can be modified, however, so that the causation is portrayed as unsuccessful. In this situation, another semantic difference becomes evident.

d) k^hŋom bəm=bæk kəncək tae wiə mən bæk te:

I cause-break glass but it Neg break Neg

'I tried to break the glass, but it wouldn't break.'

e) k^hŋom t^hwx:-ʔaoy kəncək bæk tae wiə mən bæk te:

I cause glass break but it Neg break Neg

'I tried to break the glass, but it wouldn't break.'

In 3d, the morphological version, the speaker means that he has tried every means possible to try to break the glass, but it still will not break. He has been thorough in his attempt. In the periphrastic counterpart, 3e, the speaker has tried only one or two ways. Here it would be expected that his conversation partner suggest to him other methods he might try. Note that in this pair of sentences, the parameter of intention is not relevant as it is 3b and 3c. Both 3d and 3e encode intentional actions.

In the fourth example, the contrasting semantics involves causer and causee control, immediate involvement of the causer, and the success of the causation. In a, the agent is the teacher, who sits with Mora and teaches him directly, making sure that he learns, whether or not he is a willing student. The teacher is in control. In b, the agent is not necessarily himself the teacher. He may be a parent who has tried to convince Mora to study. Mora, however, may disobey, and this sentence does not entail that he actually learns.

4) a) k^hŋom bɔŋ=rɪən mɔra:

I cause-learn Mora.

'I teach Mora.'

b) k^hŋom t^hwx:-ʔaoy mɔra: rɪən

I cause Mora learn

'I made Mora learn.'

In example five, one semantic contrast centers on the causee's capacity for self control. Example 5b is unusual or humorous. Here, the use of the periphrastic causative signals that the experiencer of the causation has some capacity to act independently. The experiencer in this case, however, has no such potential for self control. The food cannot cook itself. Here, the semantics of the periphrastic construction, conflicts with the semantics of the causee and there is internal contradiction, hence humor. Example 5a would be a more usual utterance. Other by now familiar semantics are at work here as well. Sentence 5b succeeds with a slight modification, as shown in 5c. In this example, the speaker is confessing or making an excuse about an action in the past. He has unintentionally allowed the food to overcook, perhaps by forgetting to tend it. In contrast, the speaker would use 5a if he were cooking at the time of utterance, perhaps in answer to a question about what he is doing. Example 5a also implies intentional involvement.

5) a) k^hŋom c=ɔm=ʔən mhowp

- l caus-cook food
 'I cook the food.'
- b) ?k^hnom t^hwx:-?aoy mhowp c?an
 l cause food cook
 'I tell the food to cook itself.'
- c) k^hnom t^hwx:-?aoy mhowp c?an pek
 l cause food cook too
 'I overcooked the food.'

The table below summarizes the semantic contrasts illustrated in the above examples. Numbers in parentheses indicate the examples in which a certain contrast has been found to be relevant.

<u>Morphological causative</u>	<u>Periphrastic causative</u>	
a) causer intends action	causation may or may not be intentional	(1,2,3,5)
b) causer is directly involved e.g. physically present	causer is involved indirectly	(1,2,4)
c) causer makes thorough attempt to effect change	causer does not make thorough attempt to effect change	(3)
d) causee yields control	causee retains self-control	(4,5)
e) causation succeeds	causation may or may not succeed	(4)
f) causation is in progress at the time of the utterance	causation precedes utterance in time	(3,5)
g) effect occurs immediately	effect may be delayed	(1)

Not every contrast is relevant to every example. Moreover, we might expect that further investigation would turn up further similar contrasts. There are two observations to be made with regard these points. First, although no contrast seems to be relevant in all cases, when a contrast is relevant, it will function as described in the table. For example, direct involvement on the part of the causer seems to be irrelevant in example three about breaking glass. In both the morphological and periphrastic versions the agent is directly, physically involved. However, when this parameter is relevant, as in example one, about killing, it is the morphological construction which encodes more direct, immediate involvement and the periphrastic construction which encodes indirect or mediated involvement and not vice versa.

The second observation is that although this list may not exhaust the semantic contrasts that may be managed by the morphological-periphrastic opposition, it does reveal a consistent semantic pattern to which any other contrasts would be expected to conform. It is not accidental that these contrasts are managed in just this way with respect to the morphological and periphrastic constructions. The morpho-syntactic coding reflects the semantics in an iconic fashion. The important syntactic feature of the periphrastic construction is that it separates the two events of causation on the part of the causer and activity on the part of the causee by encoding them with two separate verbs. In contrast, the morphological causative melds these two potential events into one by encoding them in one verb.

This syntactic character of the periphrastic causative is well suited to all of the semantic features summarized in the table. The syntactic distance between the two events of cause and activity is consistent with temporal distance between cause and effect (contrasts f and g) and with literal or mental distance between the causer and the caused event (contrasts a, b, and c). The syntactic division of the event into two parts, reflecting a similar semantic construal of the event as complex and not simple, also

makes possible a rupture between the causation and the caused event. Each occurs independently of the other. The causee, therefore, is capable of independent action and has the potential to resist the causer's attempt at control (contrast d). Also, the causation has the potential to fail (contrast e).

The morphological causative likewise mirrors its semantics. Here, the events of causation and activity are united in one verb. This syntactic intimacy is consistent with temporal immediacy of the cause and effect to the time of the utterance (contrasts f and g) and with physical and mental proximity between the causer and caused event which is interpreted as intention, direct involvement, and a thorough attempt at effecting change (contrasts a, b, and c). The combination of the two events into one, both syntactically and semantically, also leaves little room for a rupture between causation and caused event. The verb encodes cause and effect as an atomic event. Therefore, the causee is not expected to exercise independent will, and the causation will likely succeed (contrasts d and e).

The way in which the Khmer periphrastic-morphological opposition manages these semantic contrasts is not idiosyncratic to this language. Instead, this behavior is a manifestation of a coding principle common to many languages. Givón (1980) proposes what he calls a 'binding scale' that applies to a group of events including but not limited to causative events. 'Binding' is concerned with the degree of influence exerted over the agent of a complement clause by the agent of a main-clause verb (p.335). This influence includes factors such as those we have seen demonstrated in Khmer. Givón finds that the higher a verb falls on the binding scale, i.e. the more influence the main-clause agent exerts, the less does its complement tend to be syntactically coded as an independent or main clause. Our investigation of Khmer supports this claim. In the morphological causative, the causee and the caused event are not encoded in a separate clause with a separate verb as they are in the periphrastic construction. This reflects the strong influence of the causer over the causee, consistent with Givón's binding hierarchy prediction.

2. Semantics of the -əm(n)- Causative Infix. Some aspects of the semantics of morphological causatives can be seen by contrasting this construction with its periphrastic counterpart. Besides this, we can look for semantic properties within the morphological causative construction itself. In this section, we will examine the uses of the -əm(n)- infix, which functions as a causative when affixed to some verbs, but which serves other functions when attached to other verbs. The task here is to find a common semantic thread running through the various usages. This approach assumes that it is not a coincidence that -əm(n)- shows this configuration of distinct uses that we as Khmer outsiders or non-native speakers notice.⁵

Jenner and Pou (1982:1) characterize the semantics of -əm(n)- as follows:

'The central or original function of infix /-vmn- ~ -vn-/ is or appears to be to invest the idea of the word base with which it occurs with a durative association. By durative, I have in mind a modal color which presents the predication of the base as continuing in time in contrast to the neutral or aorist tone of the affixless base.' (emphasis mine, CFM)

They recognize four main classes of -əm(n)- derivatives which can be summarized as follows (1982:1i).

General duratives, including resultatives.

e.g. /sdəej/ 'to speak'	/səmdəej/ 'speaking, speech'
/baan/ 'to get'	/bamnaan/ 'getting, gain, profit'

Class duratives.

e.g. /saa/ 'to be white'	/samnaa/ 'the white metals'
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Causative duratives.

e.g. /rléec/ 'to stand out'	/rumléec/ 'to bring into view or prominence'
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Instrumental duratives.

e.g. /kal/ 'to raise'	/kamnal/ 'means or raising, chock, wedge'
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In this classification, Jenner and Pou note that what they call the causative durative class, which we have already encountered in previous examples, occurs very commonly. It will be argued here that their durative characterization does not satisfactorily capture the range of meanings of -ɔm(n)-. An alternate view will be suggested here, that -ɔm(n)- signals meanings within a semantic domain involving not duration, but cause and effect. The notion of pure causation seen in derivatives such as s=ɔm=lap 'kill' is one manifestation of this semantics, but other groups of derivatives display other possible manifestations.

As mentioned, the -ɔm(n)- infix often encodes a pure causative meaning as demonstrated in examples like 1c. This and other examples are listed below.

I.	slap	'to die'	s=ɔm=lap	'to kill'
	ro:liyei	'to melt'	r=ɔm=liyei	'to melt something'
	sʔat	'to be clean, pretty'	s=ɔm=ʔat	'to clean something'
	cruh	'to fall'	c=ɔm=rüh	'to make something fall'
	sruic	'to be/get sharp'	s=ɔm=sruic	'to sharpen something'
	cʔan	'to cook, get done'	c=ɔm=ʔan	'to cook something'
	sruwl	'be easy'	s=ɔm=sruwl	'to make easy'
	pʰñe:	'be surprised'	p=ɔn=ñe:	'to surprise someone'
	lʔɔ:	'be good'	l=ɔm=ʔɔ:	'to decorate'
	chralñ	'be many/much'	c=ɔm=ralñ	'to improve something'
	thɾɛx	'be right'	d=ɔm=rɛx	'to designate'
	chneh	'to win'	c=ɔm=neh	'to insist on'

In all such cases, the root verb takes only one participant and the causative affix has the effect of raising the valency to two. The causative affix, then, acts a transitivizer. Lexicalization can be noted in some of these affixed examples, e.g. l=ɔm=ʔɔ:, c=ɔm=ralñ, c=ɔm=neh. This group of derivatives supports a cause-effect interpretation of -ɔm(n)- rather than the durative interpretation. These verb bases are not more aorist than their derivatives as Jenner and Pou claim.

This causative derivation is not the only function of -ɔm(n)-. In many cases, -ɔm(n)- results instead in a nominalization as shown in the following examples. Note that -ɔm(n)- in these examples exhibits the same morphophonemic alternation patterns as causative -ɔm(n)-.

II.	top	'to stop s.t. from spilling'	t=ɔmn=op	'a dam'
	pah	'to fix'	b=ɔmn=ah	'a patch'
	stuc	'to fish'	s=ɔm=tuc	'a fishing rod'
III.	caŋ	'to carve wood'	c=ɔmn=aŋ	'shavings'
	kaŋ	'to cut'	k=ɔmn=aŋ	'pieces'
	ci:ə	'to slice'	c=ɔmn=i:ə	'a slice'
	kaən	'to gather things'	k=ɔmn=aən	'a gathering'
	ku:	'to paint, draw'	k=ɔmn=u:	'a sketch'
IV.	ʔaoy	'to allow, give charity'	ʔ=ɔmn=aoy	'a gift'
	tuwñ	'to buy'	t=ɔmn=uwñ	'a purchase'
	cu:ə	'to believe'	c=ɔmn=u:ə	'a belief'
	cuñ	'to give (tribute)'	c=ɔmn=uñ	'a gift'
	chri:lñ	'to sing'	c=ɔm=rilñ	'a song'
	kæ	'to correct'	k=ɔmn=aæ	'a correction'
	thi:ŋ	'to weigh s.t.'	d=ɔm=li:ŋ	'a measure of something'
	kwut	'to think'	k=ɔmn=kwut	'an idea'
	sam	'to look good'	s=ɔmn=am	'style, class'
	de:k	'to sleep'	d=ɔmn=e:k	'sleep (N.)'

V.	ch _h gae	'to be far away'	c=om=gae	'distance'
	ch _h rəw	'to be deep'	c=om=rəw	'depth'
	cah	'to be old'	c=omn=ah	'age'
	th _h lai	'to be expensive'	d=om=lai	'price'
	kh _h la:ŋ	'to be strong'	k=om=la:ŋ	'strength'
	ʔa:c	'to be able to'	ʔ=omn=a:c	'power'
	ch _h kuwt	'to be silly'	c=om=kuwt	'silliness'
	kh _h əŋ	'to be angry'	k=om=həŋ	'anger'

In group II above, -om(n)- derives a noun which refers to an instrument used to perform the activity denoted in the root verb. The notion of instrument falls easily within the semantic domain of cause and effect since the instrument is the indirect cause of the event. It is more difficult to view this contrast as one involving duration. In group III, the derived form refers to a material artifact created as a result of performing the activity. This artifact can be seen as an effect, something caused by execution of the event. This notion again falls easily within the semantics of cause and effect. In group IV, the nominalizations also encode by-products that result from the execution of the event. In this case the by-products are not material artifacts. Still they are by-products. Thus they belong within the cause and effect domain.

In the fifth group we find very stative, indeed attributive root verbs. In English, these are translated as adjectives, and in Khmer they function both as main verbs and as adjectives modifying nouns. With these verbs, the affixed form expresses a quality or dimension of measurement that relates to the meaning of the unaffixed form. With the measure derivatives, e.g. 'distance', 'depth', 'age', the base form may express a value along the measured dimension.

- 6) a) mora: cah
 Mora old
 'Mora is old.'
- b) mora: mian c=omn=ah cah
 Mora has age old
 'Mora is old.'

To place these derivatives within a domain of cause and effect, we can say, for example, that being old results in age as an effect, being angry results in anger, and so forth.

In the interpretation given here, -om(n)- derivatives are viewed as existing within a semantic domain involving cause and effect. This view can account for the meanings of -om(n)- in both its causative verbal and nominalized derivatives. As for Jenner and Pou's class duratives, they are much less frequent than other types, and may be the result of lexicalization. Jenner and Pou's proposal of durative association as the meaning of -om(n)- is unsatisfying. For one thing, it is less successful with the large group of causative derivatives represented in group I. Furthermore, the notion of duration is already inherent in the opposition of noun and verb itself. Nouns tend to refer to objects and things that last while verbs tend to refer to more transient events. Therefore, to explain, based on the evidence of nominalizations, that the meaning of -om(n)- is durative is to argue circularly. The specific semantics of the -om(n)- affix has to do with cause and effect.

3. Conclusion. This paper has focused on the semantics of morphological causatives in Khmer. With regard to the semantics of the morphological causative construction *vis à vis* the periphrastic causative, it has shown that this morpho-syntactic opposition reflects a number of semantic contrasts in a systematic and iconic manner. Further, it has been noted that the coding of these types of contrasts in this way is not idiosyncratic to Khmer but is a manifestation of a principle at work in many languages.

Second, this paper has examined the meanings of one of the most common causative derivational affixes in Khmer. This affix encodes a range of meanings in combination with different root verbs. The configuration of this range of meanings is not unmotivated. All of these meanings can be placed within a single semantic domain of cause and effect.

NOTES

¹I would like to thank my informants, Mr. Chamnith Hang and Mr. Sok Huor Chea, both speakers of the Phnom Penh variety of Cambodian, for their helpfulness and patience in answering questions and sharing their language.

²Jenner and Pou (1982: vii) estimate 2.32 derivatives per word base.

³Phonologically conditioned morphophonemic alternation in the =ɔm(n)= infix involves the following factors. The vowel of the affix occurs as either /o/ or /ɔ/ assimilating to the height of the following vowel.

- i.a) cʔən --> c=ɔm=ʔən
'to cook' --> 'to cook something'
- b) sruwɿ --> s=ɔm=rɯwɿ
'to be easy' --> 'to make easy'

If the infix occurs before a vowel, i.e. if the verb root has only one consonant in the onset, then a transitional /n/ is added.

- ii) caic --> c=ɔmn=aic
'divide' --> 'a division'

In some cases, an onset beginning with a voiceless stop will voice.

- iii) tʰlɔŋ --> d=ɔm=lɔŋ
'to weigh s.t.' --> 'a measure of something'

In a few cases, the /m/ of the infix assimilates to a following nasal.

- iv) pñeʔ --> p=ɔn=ñeʔ
'to be surprised' --> 'to surprise someone'

Sentences in this paper will be given in phonemic, not morphophonemic transcription. See Jenner (1969: 168-169) for more discussion of this alternation.

⁴Morphophonemic alternation of the bɔN= prefix involves assimilation of the nasal to the following consonant and, in some cases, of the vowel to the height of the following vowel. The exact conditioning factors for vowel height are not obvious. The initial /b/ is realized as /p/ if the first consonant of the verb stem is /r/ or /l/.

- i) ʔɔ:t --> bɔŋ=ʔɔ:t
'to be empty' --> 'to withhold something from someone'
- ii) cʰu: --> bañ=cʰu:
'to be sick' --> 'to hurt someone emotionally'
- iii) ruwñ --> pɔn=rɯwñ
'to shrink' --> 'to make something small'

⁵It should be noted that despite several thorough studies (Jenner, 1969; Jenner and Pou, 1982.), Khmer morphology is not completely understood. A long and complex diachronic development has left the synchronic situation in disarray. Much of the morphology appears to be opaque after centuries of lexicalization and phonological change. Some of the root forms have not survived, making recognition of derivational sets a difficult task. Furthermore, there is no simple mapping of affix form onto word class. Jenner and Pou (p. xxiii) note that 'neither the affixes themselves nor the derivatives they yield carry any implication of particular word classes.' Neither is there a simple relationship between affix form and semantic function. Instead, one form may have several functions and a single function will be manifest in several forms. This is the case with the =ɔm(n)= infix and the causative function. =ɔm(n)= is not limited to a pure causative function, and other affixes, such as bɔN= also occur with

causative function.

⁶These examples are cited following Jenner and Pou's phonemicization which is slightly different than the one used in this paper.

REFERENCES

- Givón, Talmy. 1980. The Binding Hierarchy and the Typology of Complements. *Studies in Language* 4.3. pp. 333-377.
- Jenner, Philip Norman. 1969. Affixation in Modern Khmer. Ph.D. Dissertation. University of Hawaii.
- Jenner, Philip Norman, and Saverous Pou. 1982. A Lexicon of Khmer Morphology. Published as Philip Norman Jenner, ed. *Mon-Khmer Studies IX-X*. Honolulu: University of Hawaii Press.
- Schiller, Eric. 1987. Causativity in Southeast Asia: Historical/Comparative Morphosyntax. In Elena Bashir, Madhav M. Deshpande, Peter Edwin Hook, eds. *Selected Papers from South Asia Language Analysis (SALA) 7*. Ann Arbor: University of Michigan. pp. 283-298.

**Giving and Causation:
The Functions of ?aoy in Khmer***

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1. Introduction

Within the past fifteen years, several researchers (Lord, 1982; Givón 1979, 1984; Hopper and Thompson 1984) have remarked upon a diachronic process in which certain verbs in serial verb constructions undergo semantic 'bleaching', becoming prepositions. Like most such processes, this 'bleaching' is by no means a sharply delimited event; one can point to phenomena in several languages which appear to result from particular elements being incompletely 'bleached'. The 'coverbs' of Chinese, and other Southeast Asian languages are a good example: in certain environments, these elements can be analyzed as full verbs, while in others, they conform to the usual definition of prepositions. This brings up a rather thorny theoretical issue: should these coverbs be considered sets of related homonyms, with one form being a verb and the other a preposition, or should an alternate analysis be attempted, and if so, what form would such an analysis take?

In this paper, a range of Khmer constructions will be presented in which the lexical element ?aoy, usually translated as 'give', occurs. In some of these, ?aoy appears to operate as the main verb, or one of the main verbs, of the sentence. In others, ?aoy appears to have a more 'preposition-like' character. An interesting aspect of ?aoy is that in addition to functioning as a beneficiary marker (which is what one would expect of a verb of giving grammaticalized into a preposition), it appears to function as a type of causative element in other constructions.

*This paper was one of three which received the Presidents' Commendation.

2. Occurrence and Functions of ?aoy.

?aoy is the basic Khmer verb meaning 'to give', and as such it participates in a serial verb construction with another coverb, tɿ:. As the main verb of a sentence, tɿ: is best translated as 'go'; it also takes part in constructions in which it can be interpreted as a prepositional element introducing locative goal phrases. In conjunction with ?aoy in a 'giving' construction, it indicates the person the object is given to: ¹

1. kñom tɿ: dalah
I go Dallas
'I went to Dallas'
2. mora: ?aoy siwphəw tɿ: pɔʔo:n kɔət
PN give book go y.b s/he
'Moraa gave a book to his younger brother'

The construction in example 2 is a familiar linking type in which the object of ?aoy serves as the subject of tɿ:. In this case, the usual analysis is to treat tɿ: as a preposition and ?aoy as the main verb (cf. Huffman 1970, Jacob 1968). An interesting shift in meaning occurs, however, when the object of ?aoy, rather than being an inanimate object, is an animate entity:

- 3.a) khey ?aoy mora: tɿ: dalah
they give PN go Dallas
'They let Moraa go to Dallas'
- b) kñom ?aoy pɔʔo:n kñom tɿ: yiey
I give y.b. I go g.m.
'I let my younger brother go to grandmother'
- c) kñom ?aoy siwphəw tɿ: dalah
I give book go Dallas
'I sent the book to Dallas'
*I gave the book to Dallas'

Although syntactically the examples in 2 and 3a-c are identical, the use of an animate object/subject of tɿ: changes the interpretation of ?aoy to 'let', while the use of both an inanimate object and goal forces the interpretation as 'send'. In 3a, as an entity capable of independent movement, Moraa is as appropriate as an Agent subject as an Undergoer object; there is a corresponding heightening of the 'verbal' character of tɿ: as an

action. One would be hard pressed to analyze tɿ: as a preposition in example 3a, although purely structural criteria would demand that it be treated the same way in both 2 and 3a (and 3b). In terms of syntactic behavior, tɿ: in these positions can be argued to be 'less verbal' because it cannot occur immediately preceded by aspectual particles (these must precede ?aoy); this is true, however, of verbs in other types of constructions involving both serial verbs and embedding as well. While the evidence indicates that the Khmer speaker perceives a strong semantic differential between examples such as 2 and 3a, it is not clear that there is a formal difference between the occurrences of tɿ: in these sentences. In previous analyses, such as Liem (1974), tɿ: is termed a coverb, but treated essentially as a preposition; it is considered to be primarily a case-role marker, without full verbal qualities.

Similarly, the interpretation of ?aoy is substantially different in examples 2 and 3c on the one hand, and 3a and 3b on the other: when followed by an inanimate object, the subject of ?aoy is seen as the primary agent of the sentence, the one who 'does' whatever action is involved. With an animate object, on the other hand, the control of action in the sentence is to a large degree subsumed by the object; the subject of ?aoy is a facilitator, a type of cause rather than the sole agent of the sentence.

Rather than being an isolated phenomenon, the apparent 'split' in interpretation of ?aoy between pure agent and facilitator/cause is mirrored by a variety of other constructions, the relation between which might be rather obscure without the examples above. These may be divided into 'beneficiary' usages, in which ?aoy has become grammaticalized as an apparently prepositional marker, and 'causative' usages, in which ?aoy is a required element with verbs of manipulation.

When serving in its beneficiary function, ?aoy can be analyzed either as occurring between a full clause and the beneficiary, or as a purely prepositional element following the direct object and preceding the beneficiary phrase ²:

- 4.a) knom chɔ: bay ?aoy mora:
 I cook rice give PN
 'I cooked rice for Moraa'
- b) knom tɕ: psa: ?aoy mora:
 I go store give PN
 'I went to the store for Moraa'
- c) knom tuɳ siwphəw ?aoy bi:l
 I buy book give PN
 'I bought a book for Bill'

The object of ?aoy in this function must be animate, and is usually volitional to some extent, or at least, is aware that the action is being performed, as demonstrated by examples 5 and 6 below:

- 5.a) knom caol ba:l ?aoy moraa
 I throw ball PN
- b) knom caol ba:l tɕ: moraa
 I throw ball go PN
 'I throw the ball to Moraa'
- c) knom caol ba:l da? Moraa
 I throw ball put PN
 'I throw the ball at Moraa' (He doesn't expect it)
- 6.a) knom caol ba:l tɕ: la:n
 I throw ball go car
 'I throw the ball at the car'
- b) *knom caol ba:l ?aoy la:n

In 5a-c, three different coverbs are used to mark the 'receiver' of throwing. While all three are grammatical, there are differences in interpretation among them. 5b, with tɕ:, is the most neutral member of the set, as it can be used in all contexts where either ?aoy or da? 'put' can be used. When ?aoy is used, its object must be animate, as shown by the agrammaticality of 6b. While da? may be used with an animate object, as in 5c, it connotes less an active participant in the game than an unwitting target. 6a may thus be translated either as 'I threw the ball to Moraa' or 'I threw the ball for Moraa'; the beneficiary sense of ?aoy remains.

It is not uncommon for a verb of giving to grammaticalize as a beneficiary preposition; this is, in fact, what Givón (1979.28-30) has argued is the normal course of development for this type of verb undergoing 'bleaching.' The facilitator/cause function of ?aoy is a somewhat different development, however. As previously mentioned, many verbs of manipulation require ?aoy:

- 7.a) kñom twɿ: pteh
I make house
'I built a house'
- b) kñom twɿ: ?aoy siwphəw tle?
I make book fall
'I made the book fall'
- c) *kñom twɿ: siwphəw tle?
- 8.a) khey bəŋgkhəw ?aoy kñom tɿ: dalah
they order I go Dallas
'They ordered me to go to Dallas'
- b) *khey bəŋgkhəw kñom tɿ: dalah
- c) kñom dəmɾəw ?aoy mora: tɿ: psa:
I pick Moraa go store
'I designated Moraa to go to the store'
- d) kñom ?a?ñuñə:t ?aoy bi:l tɿ: dalah
allow
'I allowed Bill to go to Dallas'
- 9.a) kñom bañciə cumnɔt ?aoy chop mɿ:l siwphəw
I command Chamnith give stop read book
'I ordered Chamnith to stop reading the book'
- b) kñom kəmla: comnɔt ?aoy tɿ: mɿ:l siwphəw
I encourage Chamnith give go read book
'I encourage Chamnith to go read the book'
- c) kñom tu:miən mora: ?aoy tɿ: mɿ:l siwphəw
I advise PN give go read book
'I advised Moraa to go read the book'

When an object is created by means of labor, the verb twɿ: 'make' may be used without ?aoy as in 7a. When, however, the condition of an already extant object is changed, ?aoy is required as in 7b. With verbs of 'social manipulation', ?aoy is usually required, although there

are some variations in sequencing of the type attributed to 'Subject to Object Raising' in the transformational literature. Verbs such as those in 8a-d pattern with the shared element in the subject position of the second clause, while verbs such as those in 9a-c pattern with the shared element in object position in the first clause. With some variation, the general tendency appears to be for the 'Raised' pattern to correlate with high affectedness of object and emotional involvement of the main-clause agent, as per Givón's (1980) binding hierarchy³.

With the verb cɔŋg 'want', it is possible to either use ?aoy or not, but there is a corresponding shift in meaning:

- 10.a) kñom cɔŋg ?aoy comnwt mʔ:l siwphəw
 I want Chamnith read book
 'I want Chamnith to read the book'
- b) kñom cɔŋg comnwt mʔ:l siwphəw
 'I like Chamnith to read the book'
- 11.a) kñom cɔŋg ba:n la:n
 I want have car
 'I want to have a car' / 'I want a car'
- b) *kñom cɔŋg ?aoy ba:n la:n

With ?aoy, and in a sentence with an animate object, cɔŋg acts as a potential verb of manipulation (statements like "I want the salt" are seldom interpreted as simply statements of internal state, logic notwithstanding), while without it it connotes only a reaction to an already-accomplished event. With inanimate objects, on the other hand, ?aoy is not used, as demonstrated by 11a and 11b. This points out a consistent connection between the beneficiary and causative functions of ?aoy: it is used in most cases with either a human/animate subject or object.

A further, somewhat problematical, usage of ?aoy is in constructions in which it appears to mark what may be considered an extreme endpoint or result:

- 12.a) *kñom mɿ:l siwphəw ʔaoy ba:n cralñ*
 I read book give BNDRY more
 'I will read more books than before'
- b) *kñom sɔnsɔm loy ʔaoy ba:n cralñ*
 I save money give BNDRY more
 'I will save more money than before'
13. *kñom nʉng mɿ:l siwphəw ʔaoy chop*
 I fut. read book give finish
 'I will read this book to the end'
- 14.a) *kñom (nʉng) mɿ:l siwphəw nih ba:n*
 I TNSE read book this BNDRY
- b) *kñom (nʉng) mɿ:l siwphəw nih ʔaoy ba:n*
 'I will read this book'

The *ba:n* morpheme in 12 - 14 is a type of semantic boundary marker; as such it is used to mark a number of aspectual qualities similar to the perfective aspect of other languages (cf. Meyer, forthcoming). It can thus signify completion, as in 14, in the absence of an overt verb of 'finishing' such as *chop* in 13. Note that in 13-14, *ʔaoy* marks the 'endpoint' or 'result' of the action in the preceding clause. It also appears to distance this endpoint in some way. In 14a, the interpretation of the sentence is as a simple statement of intent, while 14b is interpreted as connoting the overcoming of some obstacle (the book is banned, for example).

3. Discussion and Summary

The primary point of interest in the range of constructions with *ʔaoy* is not that it can act as a beneficiary marker, but that it can also act as a causative, and that this dual range of functions can be evident in one set syntactic context: the serial verb construction with *tɿ:*. Examples 2 and 3 may be considered to represent a type of 'see-saw' phenomenon, in which different areas of meaning in the two verbs, as well as their semantic prominence in the sentence, are altered by the actants with which the verbs occur. In the sequence [*X ʔaoy Y tɿ: Z*], *X* is always animate; but while an inanimate *Y* will correspond with a lower verbal character of *tɿ:* and identification of *X* as the sole agent of the sentence, an animate *Y* will correspond with

a split in agenthood between X and Y and a strengthening of the verbal interpretation of tɔ:.

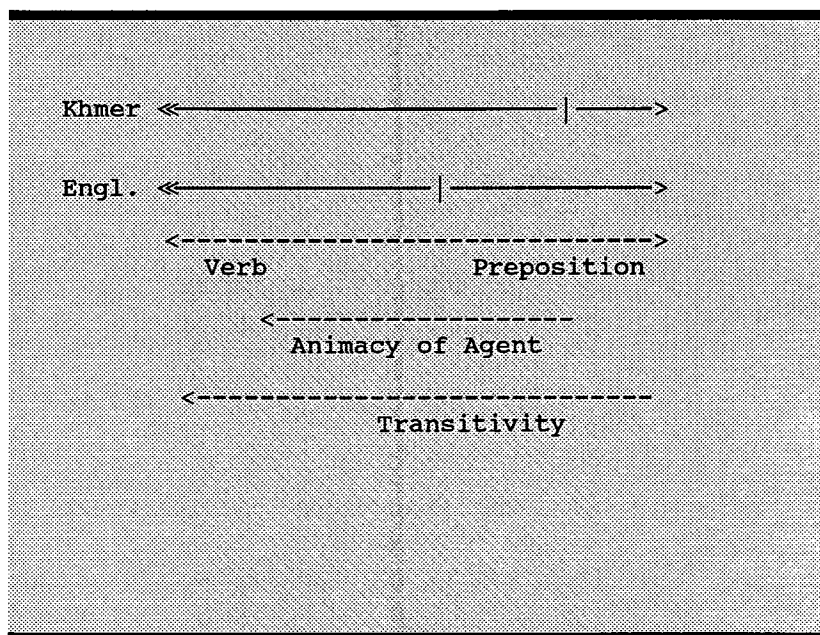
From a historical standpoint, the 'give' interpretation of ?aoy may predate the 'let' or 'cause' interpretations. There is an infixed derivative form ?amnaoy which means 'gift'; since infixation is no longer a productive process in Khmer (nor has it been for some time) the fact that ?amnaoy means 'gift' and not 'cause' may be taken as evidence for the precedence of the first meaning. A possible course of development, then, is one in which the ?aoy...tɔ: construction came to admit animate object/subjects, leading to a split in development between ?aoy as benefactive (an extension of the original 'give') and ?aoy as cause (an extension of the 'let' interpretation). Note that these two paths of development are not semantically exclusive; the person for whom an action is done is in a way the cause of the action, so that causation and beneficiary relations are partially contained within each other.

The relation between examples 2 and 3, as well as the possible historical connection between these constructions and the causative and beneficiary usages of ?aoy, present a particularly interesting problem for the analysis of serial verb constructions. The fact that the verbal, as opposed to prepositional, characteristics of both ?aoy and tɔ: may be varied in the same syntactic environment by the semantic characteristics of their arguments suggests that a simple differentiation of 'verb' and 'preposition' homonym sets for serial verbs is ineffective; rather, what is needed is a more fluid analysis in which it is recognized that there is a difference of degree, rather than of kind, between verbal and prepositional elements. That is, there exists a foregrounding scale along which these elements can be arranged: items at the 'high' end of the scale can be termed 'verbs' and those at the 'low' end, prepositions.

The sensitivity to participant semantics demonstrated above for elements such as ?aoy indicates one method by which a scalar analysis might be done: the relative 'value' of the element on the scale could be considered as a function of the extent to which that element serves as the fulcrum of the clause's transitivity, or, following Hopper and Thompson (1984), the extent to which it approximates prototypical 'verbhood'. Since transitivity, according to this view, is integrally related to participant semantics, the

analysis can take account of such factors as are involved in the constructions discussed above. If a verb in a serial verb construction has an agentive subject and affected (probably inanimate) object, that verb will 'outrank' another verb whose arguments do not conform to this highly transitive pattern. In 2 and 3c, above, for example, ʔaoy has animate agentive subjects and inanimate objects, while tɿ: has inanimate subjects; this correlates with the higher verbal value of ʔaoy as compared to tɿ:. In 3a and 3b, on the other hand, both verbs have animate agentive subjects, leading to roughly equal values on the scale. Morphosyntactic status as verb or preposition may be diachronically determined by the relative frequency of situations in which the element in question appears in highly transitive context; with a verb of giving, which rarely involves high affectedness of object, the drift to preposition may be more pronounced. It is interesting to note that the three verb-types which Givón (1979.29) argues to be prone to 'preposition drift' (take/use, give, and go) usually do not involve highly affected objects.

Like any other analysis, the treatment of Khmer presented in this paper is, inevitably, as much a statement about English as it is a representation of Khmer⁴. That is, it is an analysis of the relations existing between English and Khmer via the medium of translation, and as such it is sensitive not only to the verb/preposition distinction in Khmer, but in English as well. The phenomena discussed lead to the conclusion that, assuming the existence of a scale of 'verbalness', the structural cutoff point on this scale is at different points in the two languages. Khmer treats elements at all but the lowest reaches of the scale as being basically the same (Khmer also uses verbs for what in English are adjectives), while English maintains a strict structural division between elements at the upper end of the scale and those farther down. Figure 1, below, summarizes this analysis:



1 Verb/Preposition Scales

The difference between the scalar analysis discussed above and the more usual homonymy view is that the homonymy analysis claims that there are actually two different forms involved, while the scalar view holds that the same form may be foregrounded to different degrees, with possible syntactic correlations. Since most modern linguistic theories allow for focus and topicalization phenomena with nominal elements, extending this to verbal ones is not a particularly problematical move. It avoids some of the inherent difficulties with the homonymy analysis, foremost among which is that of the relation between structural units and their semantic content: if it is claimed that what appears to be the same form in two different environments is actually a case of two homonyms, then the number of homonyms ought logically to be equivalent to the number of different environments in which the form occurs. Classification of the environments so as to limit the number of homonyms is inevitably reducible to a set of semantic choices (which environments are 'the same', and on what grounds); in addition, one sometimes encounters cases like that

presented here, in which the same syntactic and morphological environment contains what one would like to claim are two different homonyms. The scalar view openly acknowledges the semantic side of the dilemma, without shifting the burden of analysis onto an unmaintainable structural distinction.

NOTES

1. Overt tense markers in Khmer are optional, as is the case with most other Southeast Asian languages. The sentences given were elicited via a 'narrative past' question-pattern, and as such I have chosen to translate them accordingly. All Khmer data are from the Phnom Penh dialect. I would like to express my sincere thanks to my native informant, Chamnith Hang, both for his ready cooperation and his seemingly inexhaustible patience.

2. I have not yet determined a means whereby one of these analyses could be supported at the expense of the other.

3. There is an analytical problem with examples such as these: If a distinction between nuclear and core juncture of serial verbs is made, as in Foley and Van Valin (1984), then two different analyses may be made of the pattern with the second agent as object. The two verbs may be in nuclear juncture, so that the sentence as a whole is monoclausal (with complex verb), or the two verbs may be in core juncture with overlapping clauses. In the first analysis, there is nothing like "Raising" at all. The relevance of this analytic ambiguity is that one might wish to treat the examples with twɿ: ʔaoy as being somehow different from those with social manipulation verbs which do not pattern with "Raising", since the twɿ: ʔaoy combination usually signifies high affectedness of object. Arguing for Givon's binding hierarchy, then, extremely high object-affectedness would correlate with nuclear juncture of verb and causative *ʔaoy*; a lower degree of affectedness would correlate with core juncture and "Raising", while at the bottom of the scale would be core juncture without "Raising." Intellectually appealing as this solution is, I have not as yet found a way to formally distinguish the two ends of the scale, since the order of elements on the surface is the same.

4. This issue was drawn to my attention by those attending the Lacus Forum, to whom I express my deep appreciation.

REFERENCES

- Foley, William A. and Robert D. Van Valin Jr. 1984. *Functional Syntax and Universal Grammar*. Cambridge: Cambridge University Press.
- Givón, Talmy. 1979. Prolegomena to any sane creology. In Ian F. Hancock (ed.): *Readings in Creole Studies*, p. 3-36. Ghent: E. Story-Scientia.
- Givón, Talmy. 1980. The binding hierarchy and the typology of complements. *Studies in Language* 4(3).333-337.
- Givón, Talmy. 1984. *Syntax: A Functional-Typological Introduction* (Vol. I). Philadelphia: John Benjamins.
- Hopper, Paul J. and Sandra A. Thompson. 1984. The discourse basis for lexical categories in universal grammar. *Language* 60.703-751.
- Huffman, Franklin E. 1970. *Modern Spoken Cambodian*. New Haven: Yale University Press.
- Jacob, Judith. 1968. *Introduction to Cambodian*. London: Oxford University Press.
- Liem, Nguyen Dang. 1974. Cases in English and Southeast Asian languages, and translation. In Nguyen Dang Liem (ed.): *Southeast Asian Linguistic Studies*, 3.43-65 (Pacific Linguistics Series). Canberra: Australian National University.
- Lord, Carol. 1982. The development of object markers in serial verb languages. In Paul J. Hopper and Sandra A. Thompson (eds.): *Syntax and Semantics 15: Studies in Transitivity*, p. 277-98. New York: Academic Press.
- Meyer, Cynthia. Forthcoming. The morpheme ba:n as a boundary marker in Khmer. (to be published in SWJL)

THE SEMANTICS OF INTONATION

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In a paper presented at the 15th International Systemics Congress I attempted to explain how a description of Intonation that is based in a morpho-syntactic stratum is theoretically unsound. I also tried to show that notational problems like the stratal absence of the system of Key, the conflation of stratal criteria, the collapse of distinct functions into one ambiguous function, and a morpho-syntactic dominance of the notation adversely affect a systemic description. These symptoms indicate a need to re-interpret the meaning component of Intonation from a different locus.

This paper starts from the premise that the most suitable location for the description of the meaning of Intonation is the semological stratum. Semology and Semantics are by no means identical. Semantics embraces a much wider field of meaning and may apply to systemic relations at any stratum. Semology, on the other hand represents the extent to which the meaning potential available to one stratum has been structured and systematized within the code of a specific language. The separate semological stratum allows meaning potential to be described in its own terms, rather than in those of **wording**. The aim of the discussion in this paper is to outline what the meaning potential of Intonation is, and how we can describe it from a semological stratum. To achieve this aim the discussion will revolve around three central issues: the assignment of a general unit of meaning to which statements of Intonation can adhere, the assignment of a system and a functional locus to account for the kinds of meaning realized by Intonation, and a hypothesis about the inter-tonal relations evident in discourse.

A single choice from a single system is undoubtedly the smallest unit of meaning that we can talk about in systemics. But we need a larger unit to account for what we perceive as significant configurations of related choices; what commonly could be called "ideas". The **Information Unit** as described by Halliday does not have the trifunctional resources to allow for the configuration of all related system choices in what I am loosely referring to as an idea. However, the **semological proposition**, as described by Gregory [1985] is one to which other systemic selections can adhere. The **semological proposition** is a simultaneous selection from systems in the ideational, interpersonal and textual metafunctions. The ideational function minimally contributes selections for **process type** and the attendant roles, **concepts** and **components**. The interpersonal function adds meaning in the form

of the **speaker/ hearer mediation** (widely referred to as **speech function**) and in the form of the **speaker/ message mediation** (which includes **modality**). The textual function allows the speaker to organize the proposition into one or more realizational units. The model I am proposing uses the **Information Unit** as specified by Halliday for this purpose.

In the trifunctional proposition the information unit is in no way relegated to a lesser role. Its one-to-one realization with the tone group is vital for the recognition of the larger propositional units in discourse. In the case of highly incongruent realizations, normally caused by semological omission and syntactic ellipsis, the enabling function of the textual unit supplies us with a bench-mark for separating sense from nonsense. Just as we tend to seek for a suitable context of utterance that will allow us to sensibly interpret a decontextualized snippet of text, like "(k)not your face", so we also tend to extrapolate the inherent semological system selections necessary to interpret a tone group as the realization of an information unit, and therefore, as the sole inherent indicator of an entire proposition, which has omitted the realizations of speech function and predication.

There are two general principles for structuring statements of meaning in a semological stratum. First, all statements must directly reflect the systems available at the stratum by being describable in their terms. And, second, all systems must represent a greater degree of semantic abstraction than their realizational options in the morpho-syntactic or phonological strata. To satisfy these respective principles, we need to recognize the semological similarity between the predictive and retentive value of morpho-syntactic **theme** and the highlighting value of phonological **prominence**. At a greater degree of abstraction they form the system within which speaker-assessed importance can be linguistically described. The locus for such a system is the textual metafunction. The entry condition is the marking of semological **Importance** from the Ideational, Interpersonal and Textual choices of the Proposition. The textual sub-systems of **Focus** and **Prominence** account for the individual differences of meaning, and the possibility of simultaneous realization.

In the informal diagram of the system of importance presented in Figure 1, prominence is shown as a configuration of resources from all three strata. By and large the systems of tonicity, tone and tonality realize prominence from the ideational interpersonal and textual systems selections, respectively. Let me illustrate ideational prominence with an example. Imagine that we have made the following ideational selection:

Action Process: \ Transfer \ Personal \ [GIVE]
Agent: [JOHN] **Medium:** [MONEY] **Beneficiary:** [SALLY].

The concepts and components filling the elements of this selection are the scope of the assignability of ideational prominence. Though there are several possible realizations open to this ideational

selection, we know that the meaning of prominence will be interpreted within the systematic choices available at each semological rank.

Figure 1
Semological Stratum \ Textual Metafunction \ Importance

FOCUS

[realized in syntax
by the 1st element via
theme.]

PROMINENCE

[realized in phonology
by pitch movement via
Intonation.]

P	S	IDEATIONAL	\	<u>Process Type</u>	
R	E	[realized			
O	L	by tonicity]			
P	E				
O	C	for	INTERPERSONAL	\	<u>Speech</u>
S	T	[realized			<u>Function</u>
I	I	by tone]			
T	O			\	<u>Message</u>
I	N	TEXTUAL			<u>Mediation</u>
O	S	[realized		\	<u>Distribution</u>
N		by tonality]		\	<u>Cohesion</u>

If, for example, we were to select the **process** as the ideationally prominent semological element of structure then, the most delicate interpretation of the meaning choice must rely on pin-pointing the discoursally relevant contrast in the systemic terms that have been activated, from the semological rank of process to that of component. The limited number of options are further reduced by context and cotext. So, for example, we might have an entry like:

Prominence:\ Ideational\ Process\ Personal Transfer\ Contrastive

This would delineate the path for an ideationally prominent element of structure terminating at the systemic contrast between personal and locational transfer. This could be glossed as: **John gives Sally the money, he doesn't just put it on the table.**

The interpersonal prominence is realized by the selection of Tone and Key. At their greatest degree of abstraction, we could characterize the tones as carrying the following meanings:

- Tone 1 selects for **certainty** and/or **finality**.
- Tone 2 selects for **uncertainty** and/or **non-finality**.
- Tone 3 selects for **non-finality** only.
- Tone 4 selects for **reservation**.
- Tone 5 selects for **assertiveness**.¹

¹ This approach first appeared in Halliday [1967], and was later refined by Elmanoufy [1969].

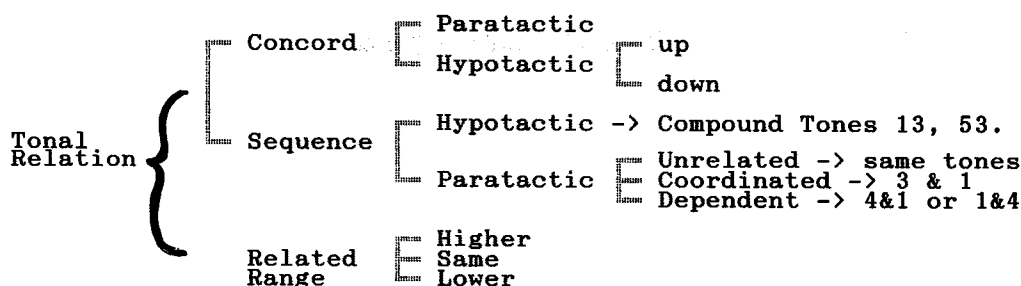
The secondary delicacy described by **Key** provides a cline of greater and lesser values for each central meaning. The meaning of **Tone** and **Key** can be specified further by context. The domain of their meaning is often related to what is made ideationally prominent. So, for example, a **Tone 2** in conjunction with our ideationally prominent process can make prominent a speaker/ message mediation of uncertainty about the process, and a speaker/ hearer non-finality of exchange.

The meaning resources of textual prominence are part of the system of **cohesion**, operating separately from, and simultaneously with the system of **importance**. The speaker can choose to signal the logical relation between predication in a proposition by organizing the proposition into information units whose respective tone types establish their degree of interdependency. The speaker can also choose to realize the same tone type on each concept of a single proposition by organizing the proposition into several information units. The resultant **tone concord** intensifies the meaning of the selection by dint of sheer repetition. Take, for example the question, //2 couldn't you have/ kept the warehouse/ open for// 2 wholesale/ business in// 2 spite of the/ deficit// [Halliday, 1970 p.105] or a statement like, //4 He's a//4 pretty good//4 runner//. In both cases, the repetition of tone serves to give a cumulative textual prominence to the selection of the interpersonal meaning realized by **tone**.

We are now bordering on the issue of inter-tonal relations, and the problem facing us is how best to reinterpret these relations in a semological/ phonological model of Intonation. To avoid re-inventing the wheel let's start from the general concepts for **Tone Sequence** and **Tone Concord** presented in Halliday's work [1970]. For Halliday, **Tone Sequence** represents the phonological realization of apposition between clauses. That is to say, that a relationship can be established between two clauses realized in two separate tone groups based on their selections of tone types. **Concord**, on the other hand, is represented as the phonological realization of apposition between elements at the syntactic rank of **group**, by the selection of identical tone types. The difference between the two tonal relations, aside from the limitation of tone combinations for cases of concord, is solely based on whether a morpho-syntactic clause is distributed into more than one information unit.

We can also follow Halliday's [1985] lead in applying the notions of **parataxis** and **hypotaxis** to inter-tonal relations. However, we need to guard against using them as an extension of the morpho-syntax. They must be made to describe relations in the phonological stratum. So, we can hypothesize that dividing the normal pitch range used by one tone over two or more tones is in some way analogous to embedding or rank shifting. It is a way of indicating a hypotactic relation between tones. Conversely, **parataxis** simply represents tones that do not choose to be phonologically embed, but are related by their choice of tone type. Figure 2 represents the options open to tonal relations in the phonological stratum.

Figure 2.
Tonal Relations²



The entry condition marked "related range" in Figure 2, is a relative measure of the ranges of two tone groups. Range relations between tone groups may indicate a semological speaker/ message mediation about the degree of expectancy between the two predications. The precise relation of related range to concord, sequence, parataxis and hypotaxis has yet to be determined. It was originally configured in relation to paratactic tone sequences based on my interpretation of Brazil, Coulthard and Johns' [1980] description of *Key*. It may lead to meaning refinements in other tonal relations as statements of phonological delicacy increase.

I would like to illustrate part of the system of paratactic and hypotactic concord, presented in Figure 2. The following three-sector graphs, produced by a micro computer programme called Micro Speech Lab should help to clarify the differences. The bottom sector of the graph, that is, the one analyzing pitch movement is of greatest interest to us. Let's begin from the most accepted option, paratactic concord, or, what has been referred to in the past, simply as concord.

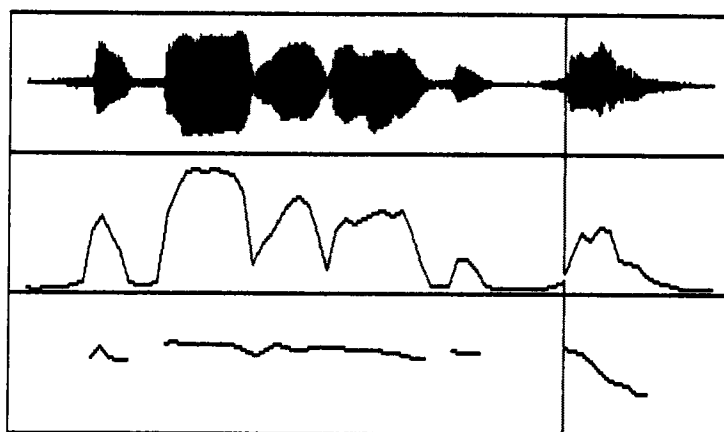
Graph 1 represents a proposition realized by one tone group³. The tonic fall on the word "too" is virtually identical in its slope starting point and range to the falling tonic in Graph 2. Graph 2, however, is an example of paratactic concord. The proposition in Graph 2 is realized by two tone groups. Both falling tonics use the

² The categories "unrelated", "coordinated", and "dependent" I have borrowed directly from Halliday [1967, p.31]. They reappear in his later work [1985, p.275] under the labels cohesive, paratactic and hypotactic. Therefore, I have chosen the older labels to avoid confusion.

³ The utterances used to generate the graphs come from the tapes that accompany Halliday's *A Course in Spoken English: Intonation*. The orthographic notation for each is the one suggested by Halliday.

full range of pitch movement in their realization. This fact establishes them as independent paratactic tones in a relationship of concord.

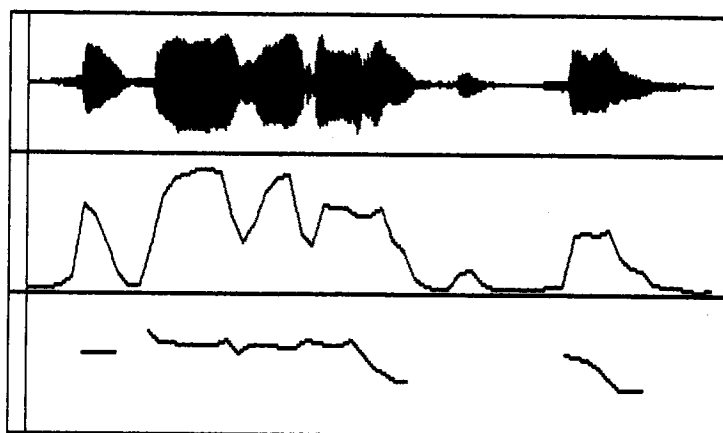
Graph 1.
The Congruent Realization



GRAPH: 90 TO 450 HZ LOG SCALE WINDOW: 8 FRAMES
TIME: 1.164000 SECS FRAME: 59 ENERGY: 2642 PITCH FREQ: 270 HZ

//.1. ^she/ sings and/ dances/ too //

Graph 2.
Paratactic Concord

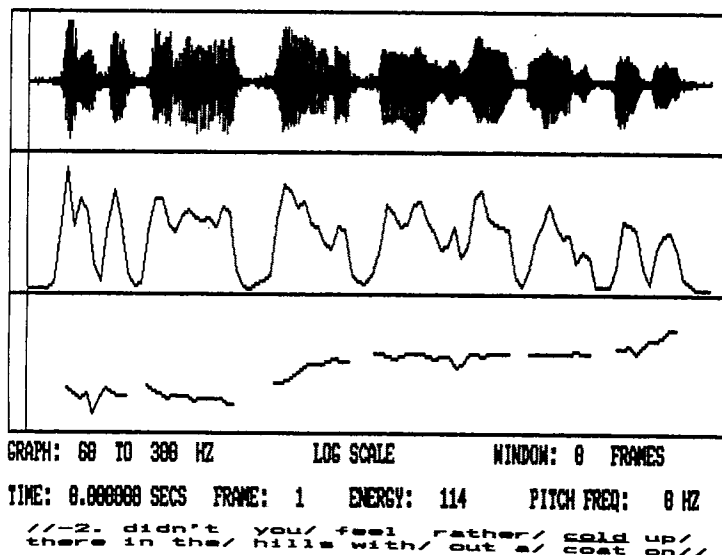


GRAPH: 90 TO 450 HZ LOG SCALE WINDOW: 8 FRAMES
TIME: 0.000000 SECS FRAME: 1 ENERGY: 69 PITCH FREQ: 0 HZ

//.1. ^she/ sings and/ dances //1. too //

Graph 3 is an example of the hypotactic concord of two tones. In earlier descriptions there was an unwillingness to divide a clause into two identical tone groups because of the perceived consistency in the direction of the pitch movement. However, there are grounds for treating the pitch movement in this example as two separate tones. With Micro Speech Lab we can divide the phonological phenomena at any point in the continuum and listen to each part separately. It is then possible to judge the independent status of each by assessing whether we can infer speech function from each part. If we can infer speech function, then we have a whole tone group, not just part of one. Furthermore, if the range of the pitch movement is divided into two distinct steps, either in an upward or a downward direction, then we can recognize a pair of tones in a hypotactic relation of concord.

Graph 3
Hypotactic Concord



This paper was meant to provide some new insights into the description of the meaning potential of Intonation from a semological perspective. I have suggested that the trifunctional **proposition** is the most revealing unit of meaning to which other semological system selections can adhere. I have also suggested that the meaning potential of Intonation can be best accounted for within the textual function by a system of **importance**. Lastly, I suggested that **hypotactic concord** be recognized as a textual option of meaning within a semological system of **cohesion**. I believe that these considerations will provide a firm foundation for the development of a semological description of Intonation.

REFERENCES

- Brazil et al. 1980: Discourse Intonation and Language Teaching. London: Longman.
- Elmanoufy, A. 1969: A Study of the role of intonation in the grammar of English. University of London PhD. Dissertation.
- Gregory, M.J. 1982-88: Notes on Communication Linguistics. Chpts. 1-7. Mimeographs, Glendon College, York University.
- Halliday, M.A.K. 1967: Intonation and Grammar in British English. The Hague: Mouton.
- 1970: A Course in Spoken English: Intonation. London: Oxford University Press.
- 1985: Introduction to Functional Grammar. London: Edward Arnold.
- Lamb, S.M. 1977: "Mutations and Relations". Linguistics at the Crossroads, pp. 407-423, eds. Makkai et al. Lake Bluff: Jupiter Press.
- Wells, W.H.G. 1985: "An experimental approach to the interpretation of focus in English". Intonation in Discourse, pp. 53-76. ed. Johns-Lewis, C. London: College Hill Press.

VI

DISCOURSE AND LITERARY STUDIES

IRONY IN SPONTANEOUS CONVERSATION

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I. Introduction

Irony, as much as it has been discussed in the areas of rhetoric and literary criticism has not been treated extensively from a linguistic point of view. Usually, irony is seen as saying something without really meaning it or meaning the opposite, thus, a second, underlying reading is hidden to be discovered. We find this definition and similar ones in, for example, Muecke (1969), Booth (1974), Nash (1985), and others.

The vagueness of the usual definitions of irony and its scattered, unpredictable occurrences make it impossible to describe irony as a bounded, clearly marked linguistic phenomenon. Irony is a relative concept and must be thought of as a variable which takes a specific form dependent upon the circumstance of its instantiation. Irony, is considered deceptive with -- as Roy (1978:8) puts it -- an 'opposition of appearance to reality'. Irony cannot be recognized for what it is in any constant way, because each participant brings his own ideosyncratic background to the situation (social, geographical, educational, etc.). The following will, however, show that we can perhaps enhance our understanding of irony as a phenomenon by identifying and analyzing specific instances of irony. This paper is part of a larger study on irony in spoken conversation and of its implications for language research. Here only a limited subset of the data will be considered.

The attempt to analyze irony in actual spontaneous conversation confronts us with several problems. It is necessary, for example, to search through large amounts of language data in order to find instances of irony, as most discourse is not inherently ironic. The vastness of these data is

necessary because of the assumption that the occurrence of irony exists in the relation of an utterance to its context. Isolated utterances are as non-ironic as they are artificial.

All utterances express overtly or covertly our presuppositions and assumptions about the world we live in. Large or small groups are established as a result of the solidarity which grows from the increasing number of shared presuppositions. As a result we usually expect that the people around us share our presuppositions. The use of irony rests essentially on such presuppositions and their denial. Thus, irony is built on the ironist's own presuppositions, which are bound to the cultural context.

In the following a few instances of perceived irony in spontaneous conversation, i.e. a conversation not planned in any way, will be discussed. The primary data for this study is taken from a German conversation at an engagement party, hereafter referred to as the Party Text, which I recorded in Berlin in 1976. The conversation provides a situation prone to irony: a circle of close friends who know about each other's strengths and shortcomings and who do not beat about the bush especially concerning the latter. A detailed analysis of the text will bring to light a number of important questions and implications that have to be dealt with when discussing irony.

II. Analysis of selected instances of perceived ironies

(1a)

- S: ja anstossen kann wa ooch noch ma
[ok, let's drink to their health again]
A: am liebsten mit anderen Gläsern wa S.
[preferably with other people's glasses,
isn't that so, S.?

(1b)

- S: war des deins?
[oh, sorry, this was yours?]
keine ansteckenden Krankheiten
[no communicable diseases]
gloob ick jedenfalls
[at least I hope so]

In this episode (1a, 1b) two participants are actively involved. It starts with an instance of irony produced by participant A. A shows S's mistake by alluding to it indirectly. She could have chosen

to say: 'Du hast mein Glas genommen.' ('You took my glass.') But instead she opts to finish his sentence ironically -- isn't it nicer to toast with other people's glasses than keeping track of one's own? The irony of episode (1a) mocks the immediate action within the situation instead of drawing on an acquaintance with the person S's general characteristics. S is not in the habit of drinking from other people's glasses, rather he has obviously taken A's glass by mistake.

What constitutes the set of clues for the irony here?

1. A's statement which is contrary to expectations, because of her stating something she surely cannot mean. It is incongruent.
2. the tag-question, wa S and with it the exaggerated intonation
3. her allusion to S's using other glasses in order to get a better share of the available champagne.

Participant S does not wait long to repartee. His first reaction is a surprised and innocent question. However, he then attacks A very subtly. It is known to him and other members of the group that A has a tendency to be a hypochondriac. He assures her that he is quite sure that he does not have any communicable diseases in an attempt to 'calm her'. His response is understood as being incongruent and as, thus, having an ironic intent, because

1. talking about diseases, especially communicable ones is not always considered appropriate or proper
2. participant S's attempt to calm A is insincere as he knows about her fear of diseases
3. with the disclaimer 'gloob ick jedenfalls', he puts his previous statement in jeopardy, while simultaneously appearing innocent and honestly concerned.

The repartee irony in episode (1b) presupposes some knowledge of the victim's personality, at least knowledge of her anxious feelings about diseases.

Ideally, an ironic utterance should make the hearer stop and reconsider. The hearer usually performs this action so fast that the break is not at all noticeable. However, at times the significance of the just-heard is realized not immediately but only after a delay. Television sitcoms, for example, play with the victim's slow recognition of the meaning of the utterance. We often see the victim leaving the room after a speaker's statement only to return in disbelief, i.e. putting time and space between the utterance and the reaction, and concomittantly, between himself and the speaker. We see an instance of this in the reaction to the following:

(2)

2 2 2
S: Fakalästhetiker
[fecal aestheticist]
wo is der Wodka?
[where is the vodka]

Fakalästhetiker, a nonce-form is juxtaposed to a seemingly unimportant question, a request for a drink. This nonce-form is outrageous but understated by S's particular use of intonation, namely monotonous. The effect is like that described above. Only some time later does another participant in the group catch on to the outrageousness of the utterance and then attempt to 'publicize' it. This effect is intended by the speaker, who is prompted to this utterance by the preceding discussion about planting a tape recorder in the bathroom 'to see what comes out'. So participant S comments on the preceding discussion in turn ironically by:

1. juxtaposing two sentences that are not related to each other
2. his intonation, which is very flat, understated
3. his partaking in two conversations
(Fakalästhetiker towards the previous irony,
wo is der Wodka towards the hostess)
4. the invention of a new term
5. the absurdity of the term itself.

We can understand why S produced the ironic utterance of number 2. He was prompted to it by the preceding conversation. So, it is apparent that the

trigger for a certain utterance can be found in the discourse, but even so the irony cannot be predicted, i.e., there is nothing that insures us that S will take the bait and come up with an ironic utterance.

S is also the speaker in the next instance, where two different styles 'clash'.

(3)

S: wollta richtig verlobt sein

[I guess y'all really wanna be engaged]

ich hoffe

[I surely hope]

ihr wisst den Ernst der Lage zu ... zu schätzen

[that you appreciate the gravity of the matter]

Participant S juxtaposes a clearly colloquial way of talking: in the (Berlin) dialect, fast, drawn together, with a very formal way of speaking, i.e. slow with long pauses (mimicking a minister or Justice of the Peace). The effect of his utterance is as expected; a further participant, M, proposes that S should become a Justice of the Peace. Of course, we have here discovered another set of triggers for irony. The signals of irony are:

1. the intonation contour (more monotonous, when formal)
2. the switch from colloquial to formal also coinciding with faster to slower delivery
3. the hesitation, mimicking perfectly the stilted speech of a civil servant
4. a 'violation' of the 'party-mode', as S is seemingly serious.

The stimulus for occurrence (3) comes out of the situation per se, i.e. the preceding talk about the engagement and the congratulatory remarks right beforehand. The irony lies mainly in the clash of the two rhetorical styles; because S uses two different forms we can assume that he is not serious about either one.

A clash of styles can be understood as a signal of irony, but also the juxtaposition of words or phrases which seemingly do not belong together or of catchwords in the context of colloquial speech can be understood as signals of irony as well. Sentence (4) is an example of the latter:

(4)

H: wo ick so jeizich bin
 [because I am too stingy]
 da mach-ick Konsumverzicht
 [I am going to renounce consumerism]

The use of the term Konsumverzicht suggests the moralistic boycotting of the existing consumer system by refusing to make purchases. The idea of Konsumverzicht is not connected with stinginess but rather with a particular political consciousness.

Participant H, however, bases her use of Konsumverzicht on her stinginess and on only one specific situation, i.e. her decision not to buy tickets to go and see a rock-group, as they are too expensive. Hence, the irony is expressed by

1. the use of a weighty term, i.e. a word with a serious connotation in a different way, disregarding its connotations
2. juxtapositioning of Konsumverzicht with a very colloquial style
3. nonemphatic intonation, no special stress on the 'big' word.

III. Discussion

Up to now I have been trying to explain where I see instances of irony at work. In order to explain the ironies involved, I have inevitably had to familiarize you with the context. The context plays, therefore, an important part in the discovery of an irony. Without knowledge about the context, which includes the situation, the participants and their backgrounds, the decoding of an irony is not possible.

The importance of context-familiarity is evidenced by the often futile attempt of a participant in an ironic occurrence to retell an irony analogous to a joke. Jokes constitute miniature separate entities and are intended to 'speak for themselves'. However, ironies can be explained, even though the explanation partially spoils the effect. In order to fully understand and appreciate an ironic instance, a participant simply had to be there. Incidentally, a joke explained at length is often no longer funny either.

But now, let us get back to a more detailed discussion of the participants. So far I have assumed three participants to be involved in any ironic

exchange. In instance (1a), for example, we have, first, the speaker/ironist A, second, S, the hearer and victim, and finally, of course, the audience, that is all the other participants. This three-part division is in general agreement with Freud's discussion of the participants in the comic and jokes in Der Witz und seine Beziehung zum Unbewussten, and others.

The roles of participants in spontaneous discourse are not static. In episode (1b) of the Party Text, the participant roles have reversed from those in (1a). S is now the ironist and A the victim. The audience functions in both episodes as a participant observer and also checks and determines the validity of an irony. The three-participant-division is not discrete. For example, the role of hearer and audience can be performed by one and the same person.

Each participant in an irony then has at his disposal a certain requisite amount of knowledge about the other participants, about the situation *per se*, and about the cultural context. This knowledge has to be shared with the other participants in order for an irony to be successful. Let's see what kind of knowledge is needed. For this we need to take another look at the examples:

Episode (1b) presupposes the audience's personal knowledge about at least one of the participants actively involved. In (1b) an audience member has to know about the victim A's feelings about diseases.

In episode (1a), the presupposed prior knowledge is predominantly situation-bound, as is episode (2). By that I mean, that the stimulus for both occurrences lies in the mutually experienced previous situation.

Finally, instances (3) and (4) presuppose a more general knowledge. In number (3), the audience-members have to be able to recognize style-differences, a colloquial versus a formal style. In instance (4), the term Konsumverzicht has to be familiar together with all its usual connotations.

These three types of presupposed knowledge provide us with a convenient classification of types of irony based on the knowledge background needed by a participant in order to decode an irony.

The irony based on such individual knowledge as the audience's (and the victim's) knowledge about the ironist's background, that is, particular personal knowledge can be called Personal Irony. Any participant (victim or audience) checks his prior knowledge about the ironist's person against the

potentially ironic statement to determine the intentions of the ironist.

The participants' knowledge about a particular situation, especially the immediate situation, is required in what we can term Situational Irony. The audience, in addition to the speaker and the victim, all have to be present in the situation per se.

Finally, shared general knowledge among the participants, in-group as well as societal or cultural knowledge is presupposed in the third kind of irony, that I will call General Irony. The ironies we encounter will often display a combination of the properties of these three types, but we observe a tendency of irony to belong more to one type than to another.

So, we have seen that the participants need to share among others knowledge about their mutual backgrounds. The stage for an irony is set. The question now is, how do the participants recognize that an ironic occurrence has taken place?

The signals of irony have to be noticed by the participants in order to decode the irony. Of course, irony does not necessarily have just one signal at a time. We have found that in most of the ironies several signals which appeared simultaneously were encountered.

Signals of irony found in the Party Text:

lengthening, cutting, ellipsis of words
 juxtaposition of incongruent words/phrases/styles
 words that belie the style
 intonation: exaggerated, flat, understated
 pitch-variations
 puns
 allusion to prior occurrences
 putting words into somebody's mouth
 implications, unfounded presuppositions
 disregard of intentions
 wrong pretense
 violation of norms
 reference to culturally accepted presuppositions
 statements contrary to expectations
 choosing a touchy subject
 insincerity
 nonce-forms
 metaphors
 hyperboles
 catchwords
Fremdwörter
 double-talk
 gestures

The features listed here function by no means uniquely as signals of irony. Figurative language, like metaphors, for example, is used in literature and spoken discourse for various purposes: e.g., aesthetics or ornamentation. Irony can make use of figurative language, but the occurrence of, for example, a metaphor or a nonce-form is not an indication that an ironic reading is expected.

After a discussion of where irony occurs, who is involved, and how it can be detected, a further question to ask is what are irony's functions, its purpose?

Irony has both interpersonal and textual functions. In the Party Text the interspersal of irony functions in part as a running commentary on the party behaviour. It seems that the use of irony delimits the type of discussion and setting that we are dealing with. One could claim that in the flow of spontaneous conversation, an irony creates a kind of disturbance, and thereby view an ironist as being rather uncooperative in Gricean terms; that is uncooperative in terms of furthering the flow of a conversation. But, the ironic occurrences in the Party Text have clearly defined functions and must therefore be seen as integral parts of the discourse in the Party Text.

IV. Conclusion

The above discussion has expanded our understanding of irony from a linguistic point of view. The opposition which functions as a main feature was found in the traditional definitions of irony as saying something but meaning something else, usually, the opposite. This definition is maintained here as part of irony. However, features that establish incongruence of various types have been added. Irony is more easily described or characterized in its appearances than it is defined. The attempt to extract similarities from the observations of ironic episodes in the Party Text lead to the following:

An irony is for the most part an intended incongruence that has to be noticed in order to succeed. Irony is not direct. It would be absurd to announce, 'I am going to be ironic now'. This would either be considered inappropriate, or, perhaps, a hidden motive might be suspected. Of course, not all members of a speech community will overwhelmingly agree on the identification of an expression as ironic. Even in very close circles ironic instances are not always agreed upon. Personal idiosyncracies and other variables always play an important role.

So, we characterize irony here as a mode of discourse, linguistic or extralinguistic, which invokes by some means an underlying reading. The means or signals appear in sets, as we have seen in the analysis of actual examples. In order to decode an irony a certain amount of shared knowledge is needed. To be more precise, a participant in an irony has to be able to differentiate the signals of irony from similar or same signals that do not justify an ironic interpretation, i.e. the participant has to notice the incongruence.

References

- Booth, Wayne. 1974. *A Rhetoric of Irony*. Chicago: University of Chicago Press.
- Freud, Sigmund. 1940. *Gesammelte Werke*. Sechster Band. *Der Witz und seine Beziehung zum Unbewussten*. London: Imago Publishing Co., Ltd.
- Muecke, D.C. 1969. *The Compass of Irony*. London: Methuen and Company.
- Nash, Walter. 1985. *The Language of Humour*. London and New York: Longman.
- Roy, Alice Myers. 1978. *Irony in Conversation*. Unpublished Dissertation. University of Michigan.

ARTICLE VARIABILITY IN WRITTEN NARRATIVE

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Grannis (1972) writes that article usage "cannot be, or at least has not been adequately described in modern theoretical terms." This statement remains true today. As reported in a previous paper (Barnes 1988), traditional linguistic analysis is inadequate to describe article usage by native speakers and to account for variability. Most traditional analyses treat the article system at the lexical, syntactic or semantic levels (Christophersen 1939; Yotsukura 1970; Quirk et al. 1985); more recent discussion examines it at the discourse level (Chafe 1976; Pica 1983). The problem is that in most studies, only one level at a time is used as the basis of analysis. Pica (1983) has demonstrated the interplay of all the levels in native speakers' choices of articles in conversation. She asserts that article use seems to be related to communicative competence rather than to linguistic competence.

Bailey and Yoon (1988) argue that three factors cause variation in article use: indeterminate countability, generalizability, and egocentric reference. An explanation of their factors demonstrates the interplay suggested by Pica. First, Bailey and Yoon demonstrate how nouns can have dual membership as count/non-count which readers variably infer one over the other. They cite these examples for the noun "food" [the underlines are mine]:

1) non-count: 0 Food is good for you.

2) count: This is a food Koreans eat.

Second, the, a, and 0 can all mark generalized noun phrases as in the following related yet contrasting structures:

3) The ring is a symbol of the union of two people.

4) A ring is a symbol of the union of two people.

5) 0 Rings are a symbol of the union of two people.

Third, they discuss the distinction between discourse situation and "resource situation" (Stillings et al. 1987). The utterance below can have alternative interpretations depending on the connectedness of these two situations:

6) The watch was in the kitchen cabinet.

The discourse situation is the here and now of the utterance; the resource situation may be that the hearer was in the speaker's house looking for the watch last week. Alternative article use occurs when either the discourse or resource situation is not clear, or not shared, between the interlocutors. The speaker uses the to mark the watch as the one sought a week earlier. But it is possible that the listener has forgotten about looking for the

watch. In a written situation, the writer may make a specific reference without taking into consideration the reader's knowledge ("egocentric reference"); conversely, the reader may not perceive the writer's "specificity." In either case, variation occurs.

It has been argued (Levin 1987; Tarone 1985) that article variability should be low in narrative. Tarone studied the writing of English as a Second Language learners and discovered a high degree of accuracy in article use in their narratives. She attributes this low variability to the discourse cohesiveness required in effective narration. One problem with her finding lies in her assessment of the "accuracy" of these learners' choices. She seems to assume that article use is universal/invariable among native speakers and that that universality can be accurately ("correctly") measured in the non-native learner's writing.

The study being reported below explores the variability of article use in written narrative and compares the findings to those of my previous study on variability. The previous study used a 370-word excerpt about the gorilla from the Encyclopedia Britannica; the current study is based on a 407-word excerpt from T. S. Lebra's Japanese Women, an ethnographic study containing many ethnographic narrative accounts from "case studies." The excerpt, which describes four women who attempted to resist the Japanese tradition of arranged marriages, was slightly modified for enhanced coherence (only transitional markers were added and the introductory sentences rearranged). As in my previous study, a cloze passage was created by inserting a blank space before every noun phrase to provide a cue for participants to write "a(n)", "the," or "0"—a total of 57 slots were created. (See Appendix I.) The same scoring scheme based on the distribution of the responses was used: 2 points for the optimal response, 1 point for an acceptable one, and 0 for an unacceptable choice.¹ Appendix II presents the score distribution for each item. An optimal score of 114 was possible, based on the responses predicted by the rules for articles as articulated in the grammar textbooks. The author's score for the excerpt is 107; the author chose only the acceptable option for items 1, 9, 11, 15, 21, 26, and 36.

The test was administered to 51 native speakers ranging in age from 13 to 49 and representing grades 8 through graduate school. Their responses were transferred to a computer scoring sheet with A representing the indefinite article, B representing the definite, and C representing the 0 article. It is important to note that not every item received a 2-1-0 score distribution.² Twenty-six items {1, 3, 4, 9, 10-16, 20-22, 24, 26, 30, 31, 35, 37, 38, 46, 50, 52, 55, 56} have such a score distribution. Comparably, another twenty-five items {5, 7, 8, 17-19, 23, 28, 29, 32, 33, 34, 39-45, 48, 49, 51, 53, 54, 57} have a 2-0-0 score distribution. The score distribution for each group was determined by the percentage of responses for each option: for the former group (2-1-0), at least a two-to-one preference for one

option over another exists; for the latter a 90% preference for one over both other options exists. Three final groups of score distributions were identified: 2-2-0 for three items {2, 27, 47}; 2-1-1 for two items {25, 36}; and 2-2-1 for item {13}. The computer then scored each participant's choices and identified a range of scores from 38 to 112. The range and frequency of each participant's score is shown in Appendix III. The few low scores may be related to the participants' reading ability or may reflect either non-attention to the task or "idiosyncratic" responses; the design of the study did not allow for further investigation.

The participants' responses for my previous study revealed variability resulting from an apparent competition between two rules: generic ("species," a) vs. specific ("specimen," the) and first/subsequent mention (a/the). However, in several contexts the choice seemed to be governed by the physical outlay of the text rather than by linguistic or discourse matters--a factor not relevant to this study. For this study, five patterns emerge in the responses: idiomatic constructions, syntactic parallelism, reference to family members, ambiguous reference and egocentric references made by the original's author, and first/subsequent mention (the most significant pattern). As will be discussed, Bailey and Yoon's factors are helpful in explaining the last patterns.

Items {28, 32-34, 44, 45, 49, 57} included in the idiom group are phrases that seem almost invariant in their form and fairly fixed semantically. These items are part of the 2-0-0 score distributions with >88% unanimous preference for one option. As Table 1 shows, item {34} is the only item to receive unanimous (100%) selection of one article only.

item	28	32	33	34	44	45	49	57
a	10.	96.	4.	100.	98.	2.	94.	4.
the	88.	2.	94.	0.	2.	96.	2.	90.
0	2.	2.	2.	0.	0.	2.	4.	6.

Table 1: Idiomatic Phrases (2-0-0 Scores)

A brief discussion of three of the items may illustrate the basis for grouping these items. For item {28}, the sentence is "Motoko objected to the idea of marrying..."; the use of "the" is predicted by the idiomatic phrase "the idea of verb+ing." Although it could be argued that the use of "the" is determined by the post-modification in such a phrase, I contend that this phrasal pattern is stored unanalyzed in the lexicon with the only variation to occur in the verb slot. Item {32} is from an unanalyzed idiom, "to be at a loss" meaning to feel confused. Item {44} is another unanalyzed idiom, from "without a second thought." Moreover, items {40, 51} regularly appear in narratives similar to stock narrative phrases like "once upon a time."

Only items {7 & 8, 35 & 36} appear in parallel structures. The second of each pair receives the same article choice as the first in 40 and 31 responses respectively. Curiously, however, the patterns of parallelism are not unanimous. Table 2 below shows the distribution of scores for each item in these parallel

structures.

item	7	8	35	36
a	7.8	13.7	22.	28.
the	5.9	3.9	72.	46.
0	86.3	82.4	6.	26.

Table 2: Items in Parallel Structures

For items {7, 8} the overwhelming preference is for "0 resistance and 0 autonomy"; yet other patterns of responses occur: three participants selected "a resistance and an autonomy" and three selected "the resistance and the autonomy." Five other patterns were selected by one participant each: "a resistance and 0 autonomy," "0 resistance and the autonomy," "the resistance and 0 autonomy," "the resistance and an autonomy," "the resistance and the autonomy." For items {35, 36} three patterns of parallelism also exist but no overwhelming preference co-occurs. While item {35} has a 2-1-0 score distribution with 72% of the participants choosing "the," item {36} is one of the two 2-1-1 score distributions with 46% selecting "the" but with 28% and 26% choosing "a" and "0" respectively. In terms of parallelism, the patterns are similarly divided: twenty participants chose the pattern "the offhanded as well as the unilateral manner"; 9 selected "an offhanded as well as a unilateral manner"; 2 wrote "0 offhanded as well as 0 unilateral manner."

Certain items refer to family members. A minority of participants select "0" as if to signal that they read the nouns as terms of address. Items {17-19, 23, 26, 30, 31, 42, 43} variously receive such responses as displayed in Table 3.

item	17	18	19	23	26	30	31	42	43
a	2.	3.9	3.9	3.9	23.5	0	2.	4.1	2.
the	92.2	88.2	90.2	92.2	68.6	86.	86.	93.9	92.
0	5.9	7.8	5.9	3.9	2.	14.	12.	2.	6.

Table 3: Family Member Words

References to mother and father in items {30, 31} have the highest incidence of this choice at 14% and 12% respectively. I had hypothesized that this use might correlate to the participants' ages: the younger ones should still refer to Mother and Father as names of address frequently in their daily lives. But the data did not bear this out; the use spanned the ages 13 to 34.

The author's or participants' "egocentric reference" for items {1, 2, 9, 15, 47} may explain why the participants' choices were not in harmony with the original. Table 4 shows participants' responses.

item	1	2	9	15	47
a	0	7.8	76.	31.4	48.
the	70.6	51.	24.	2.	50.
0	29.4	41.2	0	66.7	2.

Table 4: Egocentric References

In contrast to the original's choice of "0 four other women" for

item {1}, 70.6% of the participants seemed to read this noun phrase as a specific reference, perhaps in response to the cue in the presentation of the task that they were working with an excerpt. Similarly, 41.2% of the participants chose "0 proposals" for item {2} in contrast to the 51% who chose "the proposals" again as if responding to a previous mention. The author's specific reference to "the mediator" for item 9 seems related to the author's specific acquired knowledge that the readers do not have access to; 76% of the participants selected "a mediator" as a general reference. The author wrote "a school" for item {15} with which 31.4% of the participants agreed; however, 66.7% of the participants chose "0 school" perhaps reflecting their own experience as students and their going "to school." Item {47} has immediate previous reference other than to item 2, which seems too distant to predict "the"; the responses are divided in a 2-2-0 split with 48% preferring the author's generalized "a proposal" and with 50% opting for "the proposal."

The largest group yet to be discussed is that which contains items connected by the notion of first/subsequent mention, or the alleged strong cohesiveness of narratives. Items {5, 11, 42, 52} are subsequent mentions as discussed below.

item	5	11	42	52
a	0	15.7	4.1	26.
the	92.2	80.4	93.9	72.
0	7.8	3.9	2.	2.

Table 5: Unambiguous Subsequent Mentions

Several such relationships are unambiguously identifiable in the excerpt by the high percentage of agreement for "the," ranging from 80.4% for item {11} to 93.9% for item {42}. The noun phrase "___ four cases" marked by {5} refers to the NP "___ four other women" marked by {1}. The NP "___ degree of ..." marked by {11} refers to item {6} "___ increasing degrees of ...". The NP marked by {42} refers to "his nephew" in the previous sentence. And the NP {52} refers to "___ fisherman" NP {48}. Yet, as Table 5 reiterates, universal agreement does not exist; from 4.1% to 26.% chose the generic "a/0" for the subsequent mention discussed above.

Finally, attention must be given to items with ambiguous reference--(12, 17, 23, 26) as displayed in Table 6.

item	12	17	23	26
a	9.8	2.	3.9	23.5
the	15.7	92.2	92.2	74.5
0	74.5	5.9	3.9	2.

Table 6: Ambiguous Subsequent Mentions
with Same Head Noun

The NP's {17, 23} unequivocally refer to NP {16} "the brother" as shown in the previous table. Seventy-four and one-half of the respondents interpreted NP {26} as referring to the same brother rather than to a generalized "a brother" as indicated by the

author and interpreted by only 2% of the participants. Item {12} violates the expected "the" and points to ambiguity: "resistance" may refer to the same "resistance" of item {7}, as interpreted by 15.7% of the participants. Item {12} may also be interpreted as a general reference; 74.5% of the participants concur with the author's "0."

Other items are potentially ambiguous as well in their role as subsequent mention. Unlike those just discussed, the relationship between the NP's must be inferred since the subsequent noun is not repeated. The following discussion explains the variability, shown in Table 7, that results in such instances.

item	33	39	55
a	4.	6.	30.
the	94.	92.	68.
0	2.	2.	2.

Table 7: Ambiguous Second Mentions
with Different Head Nouns

Item {33} must be inferred to refer to the first sentence of paragraph 2; that is, "the match" is specifically interpretable as the end result of Motoko's father choosing her spouse. Ninety-four percent of the participants made this interpretation. Similarly, ninety-two percent of the participants interpreted NP {39} "the prospect" as specifying the profferer of the proposal of NP {37}. NP {55} "the employer" refers to the independent clause of the previous sentence, "she was still working as a live-in maid." Unless self-employed, one has an employer. Thus, "employer" of NP {55} is interpretable as the household which hired Mutsuko. Surprisingly, however, 30% of the participants missed the reference and marked it as "an employer."

The remaining items {13, 47}, two of the 2-2-0 items, are equally split between "a/the decrease" and "a/the proposal," as shown in Table 8.

item	13	47
a	49.	48.
the	47.1	50.
0	3.9	2.

Table 8: General vs. Specific Ambiguity

The original contained "a" in both contexts, indicating a general reference. Clearly, nearly half of the participants did not share the author's general reference and selected "the" instead. No clear contextual cue seems to exist for {47}, except that the entire excerpt has discussed proposals as set up in the first sentence. In my previous study, a similar pattern of reference occurred, suggesting the existence of a macro-structure of discourse reference for some writers as may be evident here. The contextual cue for {13} is not surmisable.

These findings verify the existence of variability in written narrative English. As in my previous study, the rules governing

the variability are complex--involving rules of discourse, syntax, semantics and pragmatics--as well as elusive. The hypothesis that narratives would yield no variation, especially in first/subsequent mention contexts, is not supported by the data. It may be that such a notion is useful for linguists and discourse analysts but has no psychological reality for most English-speaking writers.

Another account for the variation is atextual and based on psycholinguistic research in reading. A current model of reading suggests that readers actively process texts, making meaning and drawing on their own background knowledge (Adams 1980; Smith 1985). The variation I have described may result from the participants actively reading the text and deriving their own inferences. Thus, for the cloze test designed for this study (and for my previous study), the participants as readers created their own linguistic, discursive and cognitive contexts for article use. As a way to describe this process, I intend to tape small groups while they complete the cloze passage by consensus. Their comments and arguments for various choices will provide some insights into the inferencing processes they rely on to do the task. Yet another study design could be constructed involving naturalistic data--one along the lines of Chafe's (1980) Pear Stories--for which the participants are not asked to tell orally but to write a narrative about visual stimuli. Although participants can also infer about what they are seeing, they will be generating their own prose and therefore establishing their own contexts for reference and article use. Within less restricted contexts than that of my cloze test, variability in article use may also be established.

Appendix I

If necessary re-read the instructions for this task on page 1. Study the examples given to you below. Notice that there are many possibilities for one sentence. Write a (or an), the, or I to indicate your choice for each sentence.

EXAMPLES: I bought the book recommended by the experts.

I bought a book recommended by the experts.

I bought the book recommended by the experts.

I bought a book recommended by the experts.

1 four other women finally accepted 2 marriage proposals under 3 condition of 4 coercive compliance. 5 four cases presented below show 6 increasing degrees of 7 resistance and 8 autonomy. Although each woman resists and even strongly protests, each is defeated by 9 mediator. All end in 10 compliance, but 11 degree of 12 resistance corresponds to 13 decrease in 14 woman's age. At eighteen, Yuri was forced to come home from Tokyo, where she was expecting to enroll in 15 school, and to marry 16 man of her brother's choice. She expressed her protest by crying. 17 brother overruled not only 18 sister's reluctance but also 19 parents' objection that 20 groom's family had too many in-laws--as many as ten--including 21 mother-in-law whose meanness was well known among 22 neighbors. 23 brother insisted because 24 proposal came from 25 "shinseki" (26 brother's wife's mother's sister's grandson). 27 proposal from "shinseki" was hard to turn down.

In another case, Motoko objected to 28 idea of marrying 29 man she had never met, but 30 father would not relent, insisting that no parent could possibly choose anybody undesirable. 31 mother was at 32 loss, torn between her stubborn husband and her rebelling daughter, but persuaded Motoko to comply first and to come home if 33 match turned out to be 34 mistake. She reluctantly complied, not because she trusted her father but "because he would have gotten angry with me otherwise."

Another woman, Fumie, resented 35 offhanded as well as 36 unilateral manner in which her marriage was arranged. There was 37 proposal for her, and her father took 38 trip to inspect 39 prospect and his family, but on 40 way he stopped at his nephew's house overnight. Learning of 41 purpose of his journey, 42 nephew's wife proposed: "Why don't you give her to us instead?" "Oh, you mean it? Okay, let's do so," agreed 43 father without 44 second thought. Fumie was not opposed to her husband-to-be, but to 45 way her father handled it.

Mitsuko was more adamant in her protest. 46 farmer's daughter, she had ruled out farmers and fishermen as prospects, but 47 proposal came from 48 fisherman. "Damn! I hated it, I hated it. I cut my long hair short and got 49 permanent," which of course infuriated her father, who had already promised to "give" her to 50 fisherman. On 51 day 52 matchmaker came to her house to meet her, she was still working as 53 live-in maid. 54 family finally called 55 employer, who then asked her to go home "because your dad scares me." She had no choice but to go and serve tea to 56 matchmaker. She did so with her maid's apron on instead of being more formally dressed as required by 57 occasion.

Taken from Lebra, T. S. 1984. *Japanese Women*. Honolulu: U of HI Press, pp. 88-9.

Appendix II

Scoring Scheme

item 1	a=0	the=2	0=1	item 2	a=0	the=2	0=2
item 3	a=1	the=2	0=0	item 4	a=1	the=0	0=2
item 5	a=0	the=2	0=0	item 6	a=2	the=1	0=2
item 7	a=0	the=0	0=2	item 8	a=0	the=0	0=2
item 9	a=2	the=1	0=0	item 10	a=1	the=1	0=2
item 11	a=1	the=2	0=0	item 12	a=0	the=0	0=2
item 13	a=2	the=2	0=0	item 14	a=1	the=2	0=0
item 15	a=1	the=0	0=2	item 16	a=2	the=1	0=0
item 17	a=0	the=2	0=0	item 18	a=0	the=2	0=0
item 19	a=0	the=2	0=0	item 20	a=1	the=2	0=0
item 21	a=2	the=1	0=0	item 22	a=0	the=2	0=1
item 23	a=0	the=2	0=0	item 24	a=1	the=2	0=0
item 25	a=2	the=1	0=1	item 26	a=1	the=2	0=0
item 27	a=2	the=2	0=0	item 28	a=0	the=2	0=0
item 29	a=2	the=0	0=0	item 30	a=0	the=2	0=1
item 31	a=0	the=2	0=1	item 32	a=2	the=0	0=0
item 33	a=0	the=2	0=0	item 34	a=2	the=0	0=0
item 35	a=1	the=2	0=0	item 36	a=1	the=2	0=1
item 37	a=2	the=1	0=0	item 38	a=2	the=1	0=0
item 39	a=0	the=2	0=0	item 40	a=0	the=2	0=0
item 41	a=0	the=2	0=0	item 42	a=0	the=2	0=0
item 43	a=0	the=2	0=0	item 44	a=2	the=0	0=0
item 45	a=0	the=2	0=0	item 46	a=2	the=1	0=0
item 47	a=2	the=2	0=0	item 48	a=2	the=0	0=0
item 49	a=2	the=0	0=0	item 50	a=1	the=2	0=0
item 51	a=0	the=2	0=0	item 52	a=1	the=2	0=0
item 53	a=2	the=0	0=0	item 54	a=0	the=2	0=0
item 55	a=1	the=2	0=0	item 56	a=1	the=2	0=0
item 57	a=0	the=2	0=0				

Appendix III

Participants' Scores

Scores	Frequency	Percent
38	1	2.0
51	1	2.0
73	1	2.0
81	1	2.0
84	2	3.9
86	1	2.0
90	1	2.0
93	1	2.0
91	1	2.0
96	2	3.9
97	1	2.0
98	1	2.0
99	3	5.9
100	2	3.9
101	1	2.0
102	1	2.0
104	6	11.76
105	3	5.9
106	1	2.0
107	1	2.0
108	4	7.8
109	5	9.8
110	4	7.8
111	3	5.9
112	3	5.9

N=51

Notes

1. This scheme is an adaptation of the "Developed Form Values" used in computing a Syntax Acquisition Index" (SAI). The SAI was devised by Burt et al. (1975) for computing the degree of grammaticality of morpheme usage in ESL learners' speech.

2. In some cases, a participant skipped a blank space. This response then was not tallied.

References

- Adams, M. J. 1980. Failures to Comprehend and Levels of Processing in Reading. In R. Spiro, B. Bruce & W. Brewer eds. *Theoretical Issues in Reading Comprehension*, pp. 11-32. Hillsdale, NJ: Lawrence Erlbaum.
- Bailey, N. and K. K. Yoon. 1988. Variation in Article Use and Correction: Egocentricity. Paper presented at TESOL 1988 at Chicago.
- Barnes, L. L. 1988. Article Variability in Written English. In S. Embleton ed. *The Twelfth LACUS Forum 1987*, pp. 237-247. Lake Bluff, IL: LACUS.
- Burt, M., H. Dulay and E. Hernandez-Chavez. 1975. *Bilingual Syntax Measure I*. NY: Harcourt, Brace, Jovanovich.
- Chafe, W. 1976. Givenness, Contrastiveness, Definiteness, Subjects, Topics and Point of View. In C. N. Li ed. *Subject and Topic*, 25-55. NY: Academic Press.
- Chafe, W. 1980. *The Pear Stories: Cognitive, Cultural, and Linguistic Aspects of Narrative Production*. Norwood, NJ: ALEX.
- Christophersen, P. 1939. *The Articles: A Study of Their Theory and Use in English*. Copenhagen: Einar Munksgaard.
- Grannis, O. C. 1972. The Definite Article Conspiracy in English. *Language Learning* 22: 275-289.
- Levin, S. 1987. Comments made after Barnes' presentation at the Fourteenth LACUS Forum 1987 in Toronto.
- Pica, T. 1983. The Article in American English: What the Textbooks Don't Tell Us. In N. Wolfson and E. Judd eds. *Sociolinguistics and Language Acquisition*, pp. 222-233. Rowley, MS: Newbury House.
- Quirk, R., S. Greenbaum, G. Leech and J. Svartvik. 1985. *A Comprehensive Grammar of the English Language*. NY: Longman.
- Smith, F. 1985. A Metaphor for Literacy: Creating Worlds or Shunting Information? In D. Olson and N. Torrance eds. *Literacy, Language and Learning*, pp. 195-216. Cambridge: Cambridge U. Press.
- Stillings, N. A. et al. 1987. *Cognitive Science*. Cambridge: MIT Press.
- Tarone, E. E. 1985. Variability in Interlanguage Use: A Study of Style-Shifting in Morphology and Syntax. *Language Learning* 35: 373-395.
- Yotsukura, S. 1970. *The Articles in English: A Structural Analysis of Usage*. The Hague: Mouton.

WHAT TO SAY AND WHAT NOT TO SAY:
ANAPHORICAL ELEMENTS IN FRENCH AND ENGLISH

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"Le silence est d'or, la parole est d'argent." This is true not only of the act of speech in general, but also of the grammatical and stylistic architecture of language, in the case of anaphora.

Within the different languages, there are grammatical and stylistic elements which are selected to stand for other elements of language in order to avoid fastidious repetitions. Among these elements, the most commonly used are pronouns, adverbs, adjectives, verbs and sometimes nouns. In French and English, the verbs *faire* and *do* and the modal auxiliaries are often used in anaphorical representations. It also happens that anaphora is elliptical, and has a zero lexotactic realization in both French and English.

Anaphorical representation, and its elliptical counterpart, occur with about the same frequency in both languages. However, the morphotactics, lexotactics and semotactics of French and English do not permit a one to one correspondence in anaphorical realizations. This paper will describe the most frequent variations in anaphorical realizations between French and English at the morphemic, lexemic and sememic levels. It will also address the role played by anaphora in the creation of idioms.

1.0 MORPHEMIC ANAPHORICAL VARIATIONS BETWEEN FRENCH AND ENGLISH

At the morphemic level, French having only one form for English *he* and *it*, translated *il* in both cases, this pronoun *il* will act as an anaphorical element only for an animate and a strongly personalized inanimate.

Examples:

*Paul aime la bière.
Il en boit beaucoup.*

*Le chat aime le temps chaud de l'été.
Il passe ses journées et ses nuits dehors.*

*Elle possède un beau vase orné de fleurs.
Il met de la vie dans la pièce.*

In the above cases, *il* is used as the anaphorical representation of a person (*Paul*), an animal (*Le chat*) and a personalized object (*Le vase*). *Il* will not anaphorize a masculine noun of which one has little knowledge or for which entity one has no affection.

Example: *Lake Villa is a small cluster of houses near the river.
It was very pleasant and peaceful.*

Lake Villa cannot be anaphorically represented by *il* in French. One will say: *Rien n'y troublait le charme et la paix.*

In this example, the lack of correspondence between the French and English morphotactics of the third person singular subject pronouns *il/he/it* creates the very different lexotactic anaphorical representations in both languages. The French translation becomes a complete stylistic rewriting of the English sentence.

The same is true of *elle* which translates *she* and *it*. *Elle* will anaphorically represent a person mentioned before which functions as the subject of a sentence. It will also, in certain cases, be the anaphorical *représentant* of an object which is given a strong personalized and affective value.

Example: *You have a new car. How beautiful it is!
Tu as une nouvelle voiture. Comme-elle est belle!*

One cannot say * *Comme c'est belle!*

Another difficulty in anaphorical representation between French and English is caused by the English pronoun *it* which translates now *il*, now *ce*, complicated by the fact that *il* and *ce* can stand for both persons and things. Hence the question often asked by the students: "Sir, is it *c'est* or *il est*?" An answer doing justice to this question would last the whole semester and require much more than a ten page paper. There are, however, certain explanations for anaphorical representation variations between French and English in this particular case.

The general observation that one can make concerning the translation of *it is* into French and the selection of *il* or *ce* as anaphorical representation of *it* is that *il* anticipates what is coming up in the sentence, while *ce* (*c'*) refers back to something already mentioned in the context. The anaphora, in this case, may be said to be directional in nature. One may talk of progressive versus regressive anaphora.

If the anaphora is progressive, the English *it* is translated by *il*. This *il* is sememically empty. It cannot be lexemically paraphrased by anything.

Example: *It is hard to understand what he has done.
Il est difficile de comprendre ce qu'il a fait.*

If the anaphora is regressive, the English *it* is translated by *ce/c'*. This *ce* has a sememic value. It can be replaced by: *the reason for his/her conduct; his/her way of doing things; his/her attitude.*

Example: *It is hard to understand.*
C'est difficile à comprendre.

It remains to be seen will therefore be translated *c'est à voir*, based on the above reasoning.

In spoken French and for reasons of emphasis, *c'est* is often used when one would expect *il est*.

Example: *It is not easy to drive in the snow.*
Ce n'est pas commode de conduire dans la neige.

or *Il n'est pas commode de conduire dans la neige.*

In the case of anaphorical representation of a person in reference to his/her profession, nationality and religion, the English *he/she* can be translated either by *ce* or by *il/elle*

Examples: *Voilà Monsieur Garneau.*
Il est professeur.
 or *C'est un professeur.*

Voilà Madame Garneau.
Elle est professeur.
 or *C'est un professeur.*

When the English pronoun *it* can be replaced by *this*, i.e., *It does not surprise me* or *this does not surprise me*, the anaphorical representation counterpart in French must be *cela* and not *il*, which contains the sememe 'animate'. *Ceci* will never be the anaphorical equivalent of *it* or *this*.

2.0 LEXEMIC ANAPHORICAL VARIATIONS BETWEEN FRENCH AND ENGLISH

Some anaphorical variations between French and English are lexotactic in nature. This is the case especially when the anaphorical elements represent inanimates which function as complements in given syntactic structures.

When the anaphorical element *it* is a complement of place, this element gets an elliptical treatment in French lexotactics.

Example: *She walked to the bed and put her books on it.*
Elle s'approcha du lit et posa ses livres dessus.

If the entity anaphorized is an animate, the French anaphorical element will be realized lexotactically in the forms of the stress pronouns *moi, toi, lui, elle, nous, vous, eux, elles*.

Example: *She walked to the bed on which her mother was sleeping and put her books on her.*

*Elle s'approcha du lit où dormait sa mère et
posa ses livres sur elle.*

Other examples of zero anaphorical representations in French lexotactics when the element to be anaphorized is an inanimate, complement of place, are as follow:

*He went to the house and walked around it.
Il se rendit à la maison et se promena autour.*

*She swept the dust under the rug.
She swept the dust under it.
Elle poussa la poussière dessous.*

*Do you want the shoes in it (the box) or outside of it?
Veux-tu les chaussures dedans ou dehors?*

Because the French adjective can function lexotactically as a noun, it is possible for French, in certain cases, not to have an anaphorical element to stand for the noun, while English must use the pronoun *one* in these instances.

Example: *His new house cost him more than the old one.
Sa nouvelle maison lui a coûté plus cher que l'ancienne.*

Sometimes it is English lexotactics which does not require anaphorical representation.

Example: *Did you know?
Le saviez-vous?*

Thus with the verbs *dire*, 'to say', *dire de*, *parler de*, 'to tell', *voir*, 'to see', *faire remarquer*, 'to point out', *expliquer*, 'to explain', *savoir*, 'to know', *montrer* 'to show', English chooses not to have an anaphorical *représentant* for the entity concerned which is complement of the verb; French, on the contrary, always anaphorizes the object of these verbs.

Examples: *Many never told you ...
Marie ne vous en a jamais rien dit ...
Marie ne vous en a jamais parlé...*

*As we will see later ...
Comme on le verra plus tard ...*

*As will be shown later ...
Comme on le montrera plus tard ...*

In this last example, English uses a double elliptical structure with a zero anaphorical representation of both the subject and the object of the verb *to show*. Indeed, the passive structure in English is an often used device to avoid anaphorical represen-

tation.

The sentence *If you don't understand, I'll explain again* translated *Si vous ne comprenez pas, je vais vous expliquer de nouveau* is another example of a double ellipsis of the anaphorical elements in English. In this case it is both the person as a complement and the thing as a complement of the verb which undergo a zero anaphorical representation in English. In French the person as complement of the verb is anaphorically represented but the thing gets an elliptical treatment.

There are other cases when both French and English use anaphorical representation in their lexemic structures. However, the grammatical elements used to carry the anaphora belong to different parts of speech in each language.

Examples: *His father is a doctor. He wants to be one too.*
Son père est médecin. Il veut l'être aussi.

Because French cannot use the indefinite article *un, une* as an anaphorical lexemic element, it must switch to the direct object pronoun *le* to translate the English lexeme *one*. In this case, *le* takes the place of a noun which would function as an adjective. The English anaphorical element *one* is translated by *le* when the sememes 'title', 'religion' or 'profession' are present in the anaphorical structure. In English, when the sememe 'quality' is present, *one* cannot be used as the anaphorical element. The adjective must be repeated to carry the anaphora or undergo an elliptical treatment. In French, in this case, *le* continues to be used.

Example: *His father was honest. He wants to be (honest) too.*
Son père était honnête. Il veut l'être aussi.

When the English anaphorical element *one* is followed by *of* and a noun, French will use repetition instead of anaphorical representation by a different lexeme.

Example: *The divorce problem is often one of communication*
Le problème du divorce est souvent un problème de communication.

If the anaphorical element *one* in English appears after the conjunction of coordination *and*, and is the subject of the verb which follows, French uses the relative subject pronoun *qui* as the anaphorical *représentant* of what precedes the coordinated clause.

Example: *Another difficult problem and one connected to teenage pregnancy ...*
Un autre problème difficile et qui a rapport à la grossesse chez les adolescentes ...

At the beginning of a sentence, English often uses a demonstrative

pronoun to represent anaphorically what has been mentioned before. French never does that. Instead, French lexotactics will use the corresponding demonstrative adjective followed by the noun which the English demonstrative pronoun represents.

Example: *This the lion swallowed in one gulp.*
Le lion avala ce lapin d'un seul coup.

Here again the lexemic anaphorical variation consists in the substitution of one part of speech (a pronoun) by another (an adjective) and the repetition of the noun designating the object concerned.

The fact that French lexotactics does not permit the separation of the demonstrative adjective from the noun that it modifies will also contribute to a lexotactically different anaphorical representation between French and English. In most cases, the translation of an English utterance in which the demonstrative adjective is used as an anaphorical element will lead to the creation of a chiasmatic structure (Garneau 1982) between French and English.

Example:

The similarity between this and other cars is not clear.

La ressemblance entre les autres voitures et celle-ci n'est pas claire.

French can also say: *La ressemblance entre cette voiture et les autres n'est pas claire.* In this case we have adjectival anaphora, instead of pronominal anaphora.

The anaphorical elements studied above in their morphemic and lexemic differences between French and English have been mainly pronouns, nouns and adjectives. In both languages the verbs also play a major role in anaphorical representation. In this case, again, the lexotactics of French and English do not coincide.

The tag questions in English, which take a wide variety of lexemic realizations, are all translated by only one structure in French: always *n'est-ce pas?*

Examples: *You speak French, don't you?*
Vous parlez français, n'est-ce pas?

You should study French, shouldn't you?
Vous devriez étudier le français, n'est-ce pas?

This makes French interrogative anaphora much simpler than English in its lexotactic realization.

In English the auxiliary verbs *to be, to have, to do, can, will, should, would, could, etc.*, are commonly used in anaphorical representation. They often stand for another verb and its complement. They play a double role in anaphorical representation.

Example: *Did you wash the car? Yes, I did.*
As-tu lavé la voiture? Oui, je l'ai lavée.

English in this case gives an elliptical treatment to both the main verb and its complement, by using the anaphorical *do*. French must repeat the main verb and represent its object anaphorically.

After the auxiliary verbs, English does not represent anaphorically the adjectives used as attribute or complements of the auxiliary verbs. French does.

Example: *He was sick but I was not.*
Il était malade, mais moi, je ne l'étais pas.
You have brothers, but I don't.
Vous avez des frères, mais moi, je n'en ai pas.

One can safely say that with the auxiliary verbs English is more likely to practice the ellipsis of the main verb and of its complement, and also of the attribute and complement of the auxiliary verb itself. French always anaphorically represents all of these elements.

Other lexotactic variations due to anaphora in French and English are found in the cases of comparisons and in inverted structures. In these cases, French chooses to represent lexotactically the compared and inverted entities which English drops.

Examples: *You studied more than necessary.*
Tu as étudié plus qu'il ne le fallait.
This film, I haven't seen.
Ce film, je ne l'ai pas vu.

3.0 SEMEMIC ANAPHORICAL VARIATIONS BETWEEN FRENCH AND ENGLISH

Anaphora is sometimes given a different treatment in French and English because of the absence or presence of certain sememes in a given utterance.

For instance, when the sememe 'quantity' is present in a sentence, French must in general anaphorically represent, in its lexotactic structure, the objects or entity to which the sememe 'quantity' applies. In most cases, English prefers to give the silent treatment to such entities. It chooses ellipsis over anaphorical representation.

- Examples: *Take one.*
Prenez-en-un.
- At ten.*
A 10 heures.
- At twenty.*
A l'âge de vingt ans.
- In 1940.*
En dix-neuf cent quarante.
- He earns about 40,000 a year.*
Il gagne environ 40,000 dollars par année.
- Could you give me two fives for a ten?*
Pourriez-vous me donner deux billets de cinq pour un billet de dix?
- Give me three twenty-sevens.*
Donnez-moi trois timbres à vingt-sept (sous).
- Three by five index cards.*
Des fiches de 75 sur 125 mm.

But after *premier* and *première*, French treats elliptically the words *étage*, 'floor', *vitesse*, 'gear', *classe*, 'class' and *représentation*, 'showing'. English keeps these lexemes in its structure.

- Examples: *She lives on the second floor.*
Elle habite au premier.
- He went up the hill in low gear.*
Il a monté la côte en première.
- Do you travel first class?*
Voyages-tu en première?
- Were you invited to the first showing of the movie?*
As-tu été invité à la première de ce film?

The sememes 'provenance' and 'destination' cannot get a silent treatment in French lexotactics. When the verb used is *aller*, they are anaphorically represented by the adverbs *en* and *y* respectively.

- Examples: *I am leaving.* *I am going.*
Je m'en vais. *J'y vais.*

The cheers *Go! Go!* at a football game must be rendered by *Vas-y! Vas-y!* One may say that the French like to tell people where to go.

Contrary to the verb *aller*, the verb *partir* brings about the ellipsis of the pronoun. *I am leaving* can also be translated *Je pars*.

The future and the conditional of the verb *aller* lead to the ellipsis of the pronoun *y* even if the sememe 'destination' is present. We have here the phonological assimilation of the anaphorical element *y*, by the vowel /i/ which follows, i.e.

**j'y irai* > *j'irai* and **j'y irais* > *j'irais*.

An anaphorical element with a zero sememe is much more common in English than in French. This is true especially of the pronoun *it* in English which shows up as a sememically empty lexeme in many structures pertaining to formal and colloquial English. French rarely uses pronouns as anaphorical elements which do not refer back to a precise antecedent.

Examples: *He saw to it that ...*
Il a fait en sorte que ...
Rumor has it that ...
Le bruit court que ...
I find it hard to believe ...
J'ai du mal à croire ...
She thought it wise to ...
Elle crut bon de ...
Stop it! Finissez!
Watch it! Attention!

4.0 ANAPHORA AND IDIOMS

The anaphorical *it* in English, when sememically empty, is often used to create *tournure* idioms (Makkai 1972), in which the pronoun *it* is compulsory.

Examples: *Cut it out!*
Assez!
Ça va!
You've had it!
Tu es fait!
Tu es foutu!
To have it out with ...
S'expliquer avec quelqu'un...

In its translation of such *tournure* idioms, French will in most cases treat elliptically the pronoun *it*.

French allows sememically empty anaphorical elements only in idioms. The elements allowed to exist as empty realization with no particular antecedents are: *le(l',la)*, *en* and *y*. The *le*, *y*, and *en* are compulsory. Their presence in the structure is required by the French lexotactics.

Examples:

Il l'a échappé belle
He had a narrow escape.

Mon petit doigt me l'a dit.
A little bind told me.

Elle le prend de haut.
She puts on airs.

Vous vous la coulez douce.
You take life easy.

In the cases above the transitivity of the verbs requires the presence of the direct object pronouns.

With idioms in which the anaphorical elements are realized by *y* or *en* in French lexotactics, the verbs and adverbial phrases with which they occur govern the prepositions *à* or *de*. They are idioms because the anaphorical elements do not refer back to any precise and easily identifiable antecedents. For instance, if one says *J'ai beaucoup de livres. J'en ai beaucoup*, the *en* carries the sememe 'quantity' of a particular entity (books).

If one says *J'en ai assez* (I am fed up), the anaphorical *en* does not have a precise antecedent although it might be argued that the generic sememe 'quantity' is still present.

The same is true of the generic sememes 'destination' and 'provenance' in the idioms:

ne pas y aller par quatre chemins.
not to beat around the bush.

en arriver à croire
to come to believe

Other examples are:

'provenance' *en voir 36 chandelles*
to see stars

'provenance'	<i>en faire voir à quelqu'un de toutes les couleurs.</i> <i>to drive someone up the wall.</i>
'quantity'	<i>en vouloir à quelqu'un</i> <i>to hold something against someone</i>
'quantity'	<i>en prendre et en laisser</i> <i>to draw the line</i>
'quantity'	<i>en avoir pardessus la tête</i> <i>to be fed up with</i>

In these last examples, the anaphorical elements have come to stand for an abstract entity. They are examples of Kronasser's Law which states that an overwhelmingly obvious trend in language evolution is the move from the concrete to the abstract.

5.0 CONCLUSION

The principle of anaphora in French and English is a difficult concept to learn for foreign students. It is rarely predictable.

The morphotactics, lexotactics, semotactics of French and English very seldom allow parallel realizations of anaphorical elements. The pronominal and the verbal systems of both languages are the most frequent culprits in this lack of correspondence.

In deciding whether to represent anaphorical elements or to give them the silent treatment in the lexotactics of both languages, the sememes present in the structures must be taken into consideration, especially the sememes 'destination', 'provenance' and 'quantity'.

The presence of sememically empty anaphorical elements in an utterance in English and in French will often be the signal that one is in the presence of an idiom.

In English, the sememically vacuous anaphorical element *it* is found in *turnure* idioms, but also in non-idiomatic language. On the contrary, the sememically vacuous anaphorical element *le/la/l'* in its singular forms, never in the plural, will be found only in idioms in French.

As shown in this paper, speaking a language is not only knowing how to say it, but also when to say it, and what to say and what not to say.

REFERENCES

- Darbelnet, J.L. 1977. Pensée et Structure. New York: Charles Scribner's Sons. Deuxième édition.
- Garneau, J. L. 1982. A Stratificational View of Chiasmatic Structures in French and English. The Eighth LACUS Forum 1981, pp. 490-501. Columbia, South Carolina: Hornbeam Press.
- Kelly, Reine Cardaillac. 1974. Expressions idiomatiques en français vivant. New York: Harcourt Brace Jovanovich.
- Kronasser, Heinz. 1952. Handbuch der Semasiologie. Heidelberg: Carl Winter Universitätsverlag.
- Lamb, Sydney M. 1966. Outline of Stratificational Grammar. Washington, D. C.: Georgetown University Press.
- Makkai, Adam. 1972. Idiom Structure in English. (Janua Linguarum, Series Maior, Volume 48.) The Hague: Mouton.
- Vinay, J.P. and J. Darbelnet. 1958. Stylistique comparée du français et de l'anglais. Paris: Didier.

COHERENCE IN CHAUCER'S TALES

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Generally speaking, writers have a limited range of possible syntactic, lexical, and structural options available to them based on their experience of, and insight into, their culture and the communicative resources at their disposal within that culture. It should be possible, then, to identify and describe the individual's writing style in terms of the alternatives they select. The linguistic selections which give a work its coherence enable other experiential and interpersonal choices to be interpreted. What linguistic choices does Chaucer make in order to give the incredibly varied Canterbury Tales coherence? Does Chaucer's cohesive repertoire vary from tale to tale, and narrator to narrator, or is it consistent throughout? To explore these questions, the cohesive devices, as outlined by Michael Halliday and Ruqaiya Hasan in Cohesion in English, were identified in the first hundred lines of The General Prologue and six tales: The Pardoner's, The Nun's Priest's, The Wife of Bath's, the Miller's, the Merchant's and the Franklin's (none of the passages includes conversation with the Host).

Cohesion, as Halliday and Hasan describe it, is part of the 'enabling' component of the linguistic system, whereby elements that are structurally unrelated to one another are linked together through a dependency, presupposing relationship. Omissions, repetitions, collocations, substitutions and conjunctions in the text signal the reader to retrieve the presupposed elsewhere in order to arrive at an interpretation of the presupposing signal. "He", in sentence #2 of 'John won a ribbon. He did * ?' signals the reader to satisfy the presupposition set up by retrieving the subject "John" from sentence #1. The omission in sentence #2, signalled by the asterisk, also indicates that recourse must be made to sentence #1 in order to arrive at the interpretation: 'He did win a ribbon?' As the reader is forced to satisfy the presuppositions set up in this manner, a cohesive tie forms between the presupposing signal and its presupposed.

Halliday and Hasan categorize inter-sentential cohesive devices according to the type of presupposing signal and relationship that is formed. Reference, lexical relations and conjunction are semantic relations; substitution and ellipsis grammatical. Personal and demonstrative pronouns (participant and circumstantial), deictics and epithets signal the reader to satisfy referential presuppositions by retrieving the presupposed preceding the signal, in which case you have anaphora, or following the signal, in which case you have cataphora (see Halliday and Hasan p.44, 57 & 76). The generalized words: 'one', 'do', and 'so' are the most frequently realized substitutes which indicate that the reader make recourse to the nominal, verbal, or clausal presupposed in order to interpret (p. 141). Similarly, the omission of nouns, verbs, or clauses

signals the reader to locate the presupposed preceding the signal, in ellipsis (Chap. 4). Additive, adversative and alternative conjunctions form a cohesive tie between the independent clauses they separate (p. 243). This is contrasted to parataxis, where the same conjunctions join group or clause elements only. The conjunctive relationship Halliday and Hasan call casual is termed an alpha-beta clause complex in this paper (p. 243). Lexical relations include reiteration and collocation (p. 288).

As long as the presupposed can be found within the text, the presupposition set up is called endophoric, and is considered cohesive. If the presupposition is satisfied by recourse to either the reader's immediate situation, or gnostology (memory), rather than the discourse itself, the relation set up is called exophoric, which is considered non-cohesive (see Malcolm 1985). Because English is a language dependent on sequence for interpretation, sentence structure alone contributes to a text's coherence: subjects/actors are tied to predicates/actions, which anticipate objects/goals. These intra-sentential matters are considered non-cohesive, but they do add to the coherence of the text, as do certain rhetorical figures such as seriation and parallelism. Coherence is defined as all those devices which contribute to the unity of the passage to itself, and to its context.

In the "Pardoner's Tale," chains of personal reference are not an important cohesive feature since it is a first person narration. The pardoner's numerous 'I's', and occasional 'you's', as he addresses his fellow pilgrims, add to the coherence of the text to its fictional situation, not to the intra-textual cohesion. Of course, this is only true if the tale is considered an oral performance.¹ When it is considered exclusively as a written text, the reader is aware of the actual antecedent, the Pardoner, from the Host's introduction (ln. 30). One might say that the first-person pronouns in the tale are exophoric in the fictional situation, endophoric in Chaucer's collection of tales.² Either way, personal reference does not account for the cohesive strength of the Pardoner's tale. And when the Pardoner talks about people other than himself, he usually speaks generally, so his pronouns lack specific antecedents. Demonstrative reference is restricted to a few examples of cataphora intra-sententially within the noun group. Comparative reference is of some importance to the latter part of the passage.

Substitution and ellipsis are not important, cohesively, to this passage. Ellipsis sometimes follows additive conjunction, as it does in the second line of the following: "And whoso findeth him of swich blame, He wol come up and * offre in Goddes name" (lns. 97-98). The 'and' in the first line indicates that additive conjunctions do not always co-occur with ellipsis. 'But' and 'or' seldom bind together independent clauses here. However, 'or' often joins items in series, as well as 'and'. Lexical relations in the tale have some cohesive power, although

the humorous juxtaposition of such conceptual sets as religion and language with livestock and money detracts from the coherence of the whole.

Neither relative nor subordinate dependent clauses add substantially to the intra-sentential cohesion of the passage. However, the extensive use of alpha-beta clause complexes does. Gregory considers conjunctions like 'if' and 'because' to introduce clauses where there is a mutual dependency between the two clauses involved (1984). In the Pardoner's Tale, Chaucer embeds one alpha-beta in another, using two parallel betas to a single alpha, and using a single clause as the alpha for two different betas (see lns. 64-100).

For though a man falle in jalous rage,
Lat maken with this water his potage,
And nevere shal he more his wife mistrust
Though he the soothe of hir defaute wiste,
Al hadde she taken preestes two or three.

The first line in this quotation is the beta clause to the alpha in line three. The second line is another beta to the same alpha, as is the fourth line. The relationship between the first beta and alpha might be described as concessional; the second an implicit conditional and the third, concessional. In this passage the alpha-beta clauses that indicate concession, result, cause and condition are approximately equal in number.

In the Pardoner's Tale, the cohesive relationships which bind the text most effectively are lexical relations and additive conjunction. Other than these devices, the coherence of the passage is attained by grammatical parallelism, seriation, and the interweaving of Chaucer's alpha-beta clause complexes.

The introductory passage from the "Wife of Bath's Tale," another autobiography, is exophorically related to the fictional situation, endophorically to its written context. 'I' makes up the only substantial referential chain. Others are short and undeveloped, as the Wife considers the words of first one authority and then another. Demonstrative reference is limited and predominately cataphoric. Temporal circumstances are exophorically signalled by 'now'. Comparison is of some importance to this passage, and is carried by both general and particular epithets.

Nominal substitution offers minimal cohesion to the passage, and nominal ellipsis only slightly more. Conjunction is an important device: additive links only slightly more so than adversative ones. Hypotaxis, parataxis, alpha-beta clause complexes and seriation do not have much binding power here. The lexical repetition of 'wife', 'husband' and 'marriage', of other items from the same conceptual sets, of evaluative terms such as: 'wicked', 'villainy' and of a 'speaking' or 'advising' set is consistent throughout.

Lexical relations and a variety of conjunctive links, then, are primarily responsible for the cohesive relations in the introductory passage from The Wife of Bath's Tale. The variety in conjunction marks the argumentative tone of this text.

Reference is usually coherent to the situation, rather than the discourse, and substitution and ellipsis are minimal.

The coherence of the introductory passage from the "Nun's Priest's Tale" is achieved in a somewhat different manner. In this tale personal reference is a very important cohesive device: the referential chains with Chauntecleer, the widow, and Pertelote as antecedents are extensive. For the most part, third person pronouns signal the presupposing relationship; however, in the dialogue between Pertelote and Chauntecleer, these are replaced by the second person pronouns indicative of direct speech. Most of the personal reference is anaphoric. The few examples of demonstrative reference in the text are cataphoric if directed to participants; exophoric if referring to circumstances. Comparative reference is important as there are particular adjectival comparatives and superlatives, as well as general deictic comparatives.

Ellipsis and substitution are of little cohesive value to the passage, and what there is of both is nominal. Conjunction is usually additive, but it is of less importance than elsewhere. Parataxis, though, especially additive, is very important descriptively. Repetition is not used extensively. Rather, collocation divides the passage into five sections: the first, introducing the physical setting of the action, includes widow, cottage and livestock sets (lns. 1-13); the second, describing the widow's eating habits, includes food and medicine sets (lns. 14-26); the third, introducing Chauntecleer, includes colour, animal and religious sets (lns. 27-44); the fourth, introducing Pertelote, includes a 'lady' set, and the fifth, anticipating the action, includes danger and dream sets.

In the introductory section of the Nun's Priest's Tale, personal reference and additive conjunction are the most important cohesive devices. Lexical collocation adds cohesion, but to specific sections of the passage. Parallelism offers some coherence, as do the number of dependent clauses, but there are few alpha-beta complexes.

The introductory one hundred lines of the "Miller's Tale," where Nicholas, the carpenter and his wife are introduced, are primarily descriptive. Personal reference is a particularly strong cohesive device in this passage. Chains of identity centre around the wife and Nicholas. In the few lines of dialogue, third person reference shifts to first and second. The cataphoric demonstrative reference in the passage is of little importance cohesively. Comparison is a prevalent marker of the text, but much comes from similes.

There is no substitution in the passage, but there is some clausal and nominal ellipsis. In line 94 "And * lik a maide for to see", the asterisk signals the subject and predicate be retrieved from the previous line "And therto he was sly and ful privee". Conjunction is almost exclusively additive, and offers a loose, but effective cohesive tie. Lexical relations bind the text tightly as common physical descriptive sets concerning size, shape, and colour are used throughout the passage.

The cohesion within the introductory passage of The Miller's Tale is a function of a plethora of personal referents, additive conjunctions and lexical items belonging to the same conceptual sets. Parataxis, seriation and parallelism, although non-cohesive according to Halliday and Hasan, do add to the text's overall coherence. Alpha-beta clause complexes and dependent clauses are not numerous enough to contribute.

The syntactic complexity of the argumentative "Merchant's Tale" is marked in Chaucer's choice of cohesive device. Reference chains are shorter and more varied than elsewhere, as pronoun antecedents shift from bachelors, wives, and husbands to God, Theophrastus, and the knight. These chains distinguish the actual tale from the Merchant's introductory words to the Host, where first person pronouns dominate. Some of the personal reference and all the demonstrative reference is cataphoric. General and particular comparative reference add cohesion to the passage.

Substitution and extended reference are more important to the cohesion of this text than to others in the corpus: "And yit some clerkes sayn it is nat so, Of which he Theofraste is oon of tho" (lns. 81 & 82). 'It' signals a presupposing relationship with lines 75-80, where Chaucer develops the 'wife as caretaker' idea. Nominal ellipsis does not contribute much.

Additive conjunction adds cohesion, but to the same extent as elsewhere. However, beta adjuncts join many clauses to others. "'Noon other lif,' saide he, 'is worth a bene. For wedlock is so esy and so clene That in this world it is a Paradis.'" Subordination and qualification add to the intra-sentential structural coherence. The repetition of 'wife', 'husband', 'man', and 'bachelors', and the collocation of an evaluative adjective and emotional set intertwine throughout.

In the Merchant's Tale, complex syntax replaces simple coordination to a certain extent. A variety of short chains of personal referents replace a limited number of lengthy ones. Substitutes signal cohesive ties between not just nouns with nouns, and verbs with verbs, but with whole series of clauses. Alpha-beta clause complexes add to an already complex structural coherence. Repetitive and collocational lexical relations draw the many opinions expressed into a unified whole.

The introduction to the "Franklin's Tale" exemplifies yet another combination of cohesive devices. Personal reference, alone, makes the text strongly cohesive: chains of pronouns referring to the knight and his lady continue throughout. However, the third person emphasis of the tale is interrupted by a brief section of direct speech (lns. 82-87). Participant demonstratives are relegated to a minor position in making the passage cohesive, and the few circumstantial demonstratives manifested are usually exophoric. Comparative reference offers limited cohesion.

Substitution and ellipsis contribute only minimally to the inter-sentential coherence of the passage. And the ellipsis that

occurs usually follows an additive or alternative conjunction. The conjunction in this passage is more varied than elsewhere: the number of adversative and alternative conjunctions equal the number of additive ones. The parataxis within nominal groups does not utilize adversative conjunctions though. Numerous alpha-beta clause complexes add to the inter-clausal coherence of the passage; however, there are few dependent clauses which do likewise. Lexically, the introduction of the Franklin's Tale is one of the most cohesive in the corpus because of the frequency and consistency with which the emotional set is developed throughout.

The introductory section of the Franklin's Tale would seem one of the most coherent texts within the corpus. Personal reference, all types of conjunction, alpha-beta clauses and lexical collocation contribute to this.⁶

The cohesion in the first hundred lines of the "General Prologue" does not differentiate it from that of the tales. Personal reference is the dominant cohesive device, but it separates one section from another, as in the Merchant's Tale. Personified referents comprise the first eleven lines: 'April', 'Nature', 'Zephyrus'. The next thirty lines include first and third person pronouns referring to the pilgrims making their way to Canterbury. The third section is composed of thirty-seven lines, in which reference to the knight predominates. This is followed by a section where the 'squier' functions as presupposed. Demonstrative and comparative reference are almost entirely lacking in this text. The comparison is carried by similes, rather than comparative referents.

There is some nominal ellipsis in the passage; minimal substitution. The importance of additive conjunction might imply that the Prologue is a rather loosely connected, rambling passage. However, dependent clauses counteract this implication somewhat, making the style seem more periodic. Alpha-beta clause complexes are unimportant here.

Lexical variation is a marker of the General Prologue because there is such a variety in the description of each character. Lexically, the General Prologue is divided into different sections which correspond to the introduction of each new pilgrim. Battle and geographical sets characterize the knight's introduction; chivalric activities, colours, and clothes sets, the squier's.

The extent to which the General Prologue is actually considered cohesive might be debatable: it is by no means a coherent whole, in the same way that the individual tales are. It is a series of individual portraits, each complete with its own syntactic, lexical, and cohesive style.⁷ Other than the additive conjunction, then, the coherence of this passage might be considered more of a consequence of the situational and gnostological coherence within the fictional situation than of inter-sentential cohesive relations within the actual discourse. Each pilgrim is a participant in the primary event: voyaging to Canterbury while telling tales.⁸

The individual tales in Chaucer's Canterbury Tales have texture, and they do function as a unity within their contextual environment. Halliday and Hasan would say that the cohesive relations in the texts give them their coherence. By combining different cohesive devices in each of his tales, Chaucer has given each of his narrators a distinct cohesive style. The Miller, Nun's Priest and Franklin use personal reference to pull their words together; the personal reference in the Merchant's Tale and General Prologue divides the introductory passages into distinct sections of particular referential chains; the Pardoner and Wife of Bath's reference is related to the fictional situation. Comparative reference is more important to the Merchant, Wife of Bath and Nun's Priest than it is to other narrators. Substitution is particularly important to the cohesion of the Merchant's passage. Varied conjunction characterizes the Wife of Bath's and Franklin's tales. Lexical repetition contributes to the Merchant's and Wife of Bath's Tales. Conceptual sets divide the Nun's Priest's and General Prologue passages into distinct sections. Alpha-beta clause complexes add intra-sentential structural coherence to the Pardoner's, Merchant's, and Franklin's words. Dependent clauses to the Merchant's and General Prologue.

Unfortunately, few generalizations can be made from these results because of the limited size of the corpus. It would appear that the argumentative passages depend more on complex cohesive devices than the simple narrative and descriptive passages. In the Merchant's, Franklin's and Wife of Bath's passages there seems a greater likelihood of varied conjunction, substitution, lexical repetition and collocation, alpha-beta clause complexes and dependent clauses, but fewer lengthy referential chains. The descriptive Miller's and Nun's Priest's passages are more likely to rely on personal reference, additive conjunction and lexical collocation for their cohesion. The Pardoner's passage, both descriptive and controversial, lies somewhere between the two cohesive alternatives.

The hypotheses concerning Chaucer's cohesive style are somewhat more conclusive. Chaucer's cohesive repertoire was surprisingly consistent throughout the corpus. He seldom used substitution or ellipsis, and when he did, he favoured the nominal variety. Additive conjunction was a mainstay, and parataxis, usually additive but occasionally alternative, was important too. Parallelism and seriation added coherence to the passages. The presence of alpha-beta clause complexes and dependent clauses seemed more a variable source of structural coherence. Whether or not personal reference contributed effectively to the text's cohesion was also variable. Demonstrative reference was of minimal importance throughout, and was usually cataphoric. Whether comparison was realized by referential epithets, or similies was also variable.

It would seem, then, that Chaucer does have a predictable cohesive style. However, it does vary from narrator to narrator, in predictable ways. The extent to which it varies from genre to genre, as I have suggested by comparing his argumentative cohesive style to the descriptive one, needs further research.

Footnotes

1. Lawton writes that a voice of narration is not a narrator-persona, but an index of a performance (1985:100).
2. According to Lawton (1985:Ch2), the 'I' of the Pardoner's narration is not the teller of the tale.
3. See Kerhof (1982:456-60) on coordinating conjunctions and adverbs.
4. Lawton feels that there is no stylistic sign of a dramatic persona in the Wife of Bath and that Chaucer has little interest in matching the teller with the tale (1985:97).
5. See Kerhof (1982:227) for the implications of using ye/thou.
6. That one of the most cohesive passages is considered by Lawton 'the vintage performance of the standard high-style' (1985:98) might imply that the two are related.
7. See Bryan and Dempster (1958:3-5).
8. Lawton writes (1985:100) that the function of the General Prologue is not to concentrate on the narratorial persona, but to disperse it into a scattering of fictions.
9. The complexity of the cohesive selection may depend on high or low style, rather than genre. See Lawton (1985:90).

Works Cited

- Abrams, M. (ed.) 1958. Chaucer's Poetry: An Anthology for the Modern Reader. New York: Norton & Co.
- Bryan, W. & Dempster, G. (eds.) 1958. Sources and Analogues of Chaucer's Tales. London: Routledge & Kegan Paul Ltd.
- Gregory, M. 1984. "Propositional and Predicational Analysis in Discourse Description". In The Tenth LACUS Forum 1983. Columbia, S. C.: Hornbeam Press, pp. 315-22.
- Halliday, M. & Hasan, R. 1976. Cohesion in English. London: Longmans.
- Kerhof, J. 1982. Studies in the Language of Geoffrey Chaucer. Leiden, The Netherlands: Leiden University Press.
- Lawton, D. 1985. Chaucer's Narrators. Cambridge: D. S. Brewer.
- Malcolm, K. 1985. "Situational and Gnostological Exophora as Features as Features of Coherence in Casual Conversation" In The Eleventh LACUS Forum 1984. Columbia, S. C.: Hornbeam Press, pp. 274-82.

RETROGRESSIVE DEVOICING IN A DARI NARRATIVE

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INTRODUCTION

It is no longer a secret that language needs to be analyzed in context, both linguistic and situational. This does not mean, of course, that every linguist should, to quote Robert Longacre (1984:vi), "drop what he is doing and immediately begin to do textlinguistics. Rather, it is that every linguist in the world, whatever his task, should be aware that language occurs in context and should be alert to explore to the degree that is feasible the implications of such contextual connections."

One interesting question when dealing with phonology is how far a speaker can stray from a core phonetic rendering and still be understood. The obvious major controlling factor is context, both the linguistic context within which the phonological unit occurs, and the broader situational context that comprises the background for the text. In the particular short Dari narrative that is under investigation here both of these factors proved to affect phonological realization.

DARI LANGUAGE

Dari is essentially a dialect of Persian. Though mutually understandable to all speakers, Persian has two varieties: Afghan and Iranian. The native terms give some clue to the relationship between these two varieties; Farsi is the generic term that embraces all Persian while Dari refers only to Afghan Persian. As far as I know, there is no distinct term for Iranian Persian. All written Persian is essentially Iranian. Though colloquial Afghan vocabulary slips into casual written language in Afghanistan, the distinction is maintained amazingly well. The spoken word for 'water', for example, is au (used in all spoken Dari, even formal) while the written word is ab. Au is never written and ab is never spoken except when reading written text. I suspect the separation of written and spoken language is maintained at least in part because Afghanistan is essentially a non-literate society; few people write or read.

Because of Afghanistan's non-literate nature, Dari has a long, rich tradition of oral history. Speakers

slip often and quickly into storytelling mode and listeners recognize and respect this style of speaking. One of the prominent phonological features of this narrative mode is the marking of the terminals of units (both grammatical and semantic) by devoicing. It became an amazingly easy task to plot the patterns of the narrative because of this devoicing, and deviations from the expected patterns had rather transparent discourse explanations. Though the data presented here is a single, taped short tale of the teenage exploits of the narrator and his high school friend, subsequent narratives by other speakers could be just as easily plotted and analyzed.

STUDY

A single phonological unit in a language may have various phonological realizations. Though some variation may be simply free variation, most variation can be accounted for in more precise ways. The most studied constraints on phonological realization have been those of the immediate environments. As in English, phonemes in Dari vary at the word level. Voiceless stops and some affricates, /s/ and /c/, are aspirated word-initially but unaspirated elsewhere.

One finds in Dari narratives, however, other constraints on phonological realization. These are both grammatical and notional. The grammatical/notional distinction here is borrowed from Longacre (1983). The grammatical structure of a text is essentially the surface structure. At the clause level, grammatical structures are such things as subject and object. At the discourse level, grammatical structures include peak and closure. Notional structure, on the other hand, is the underlying substance that the surface structure profiles. At the clause level, notional structure consists of roles or case relations such as patient and agent. At the discourse level, these roles vary according to genre. The notional structure of a narrative is its plot and includes such features as inciting moment, climax and conclusion.

The narrative used in this study was analyzed using Longacre's notional and grammatical features. Various units of the narrative were determined after the story had been analyzed phonologically, grammatically, and notionally. I will not go into the details of these analyses here, but simply point out that the devoicing occurs at intonational boundaries and marks phonological units at various levels. For the most part, these phonological units correspond to grammatical counterparts. Kenneth Pike feels firmly that language is a coherent whole that consists of three parameters: phonological, grammatical, and referential. While Pike's referential hierarchy is not synonymous with Longacre's notional structure, the two serve similar

functions. Longacre also stresses the holistic nature of language, and this is the perspective that I take here.

In the Appendix (Section B), the final section of the narrative has been reproduced (#21-26). The numbers mark intonation groups, all ending in a final tone 5 or low pitch. These are essentially complete clauses. All of these clauses (with some exceptions that will be mentioned later) end in devoicing. The exact length of the retrogressive devoicing is often imprecise because many phonemes are already voiceless. For ease of interpretation, all devoiced phonemes are transcribed with capital letters. Thus devoiced /d/ is transcribed as /D/. Phonetically, of course, /D/ and /t/ are both realized as [t].

From a grammatical point of view, all units from the clause level up are marked by final devoicing. Clause endings have at least the final phoneme devoiced and sometimes as many as the last three or four, depending upon the tentativeness or finality of the statement. The farther back a clause is devoiced, the greater the finality conveyed. In this way, we can see sections of the narrative having generally several tentative clauses ending in the devoicing of only the final phoneme, leading up to a more final clause with devoicing extending back two or more phonemes. These clauses appear in clusters with the entire cluster ending in the devoicing of the final 3-5 phonemes.

Larger sections approximating a paragraph have the entire final word devoiced--as many as five or six phonemes. The length of devoicing seems to increase as the story progresses but the pattern is one of waves rather than a steady building. As we can see, at the end of the story the devoicing becomes quite prominent. The final sentence of the story proper, or the nucleus of the narrative, ends in devoicing extending back into the penultimate word (six or seven phonemes), amrikOI AMAD. The story ends with both a 'finis' and a 'sign off' (#27 & #28). The finis is devoiced back 12 phonemes, the last two words, while the sign off is entirely devoiced.

This rather predictable devoicing is at times violated, however. Sometimes phonemes that we might expect to be devoiced on a grammatical basis are not devoiced. At other times devoicing seems to be more prominent than would be predicted grammatically. In both cases, discourse constraints can be shown to affect the normal expectations.

If one takes the narrative and analyzes it according to Longacre's notional or plot structure features, there is a definite correlation between the various features and the violation of grammatical devoicing expectations. For the most part, the grammatical

structure of the text corresponds to the notional structure of the text; the grammatical peak, for example, coincides with the notional climax. It can be expected then that phonological features that mark grammatical structure will also mark notional structure. Thus we see the build-up in plot being marked by increasing length and occurrence of retrogressive devoicing at the end of clauses.

Something unusual happens, however, as the tale reaches its notional climax (grammatical peak). We would expect at this point that devoicing would increase; in fact, the opposite occurs. The clause that comprises the peak moment in the story contains no devoicing at all (see Appendix, Section A, #16). We are certain of this because the final phoneme is /d/ and it is realized as [d]. So while we find the narrator gradually increasing the use of retrogressive devoicing up to the climax, at that critical moment devoicing ceases.

Longacre in his discussion of the marking of Peak (1983:32), notes that one such means is a shift from the normal. In other words, a technique used to mark the rise to the peak ceases and the opposite occurs. Longacre's much used example is Hemingway's short story "The Short Happy Life of Francis Macomber." As any Hemingway reader knows, Hemingway's style is marked by short, sparse sentences. At the peak of this short story, however, when Macomber shoots his first buffalo, Hemingway shifts his style and narrates the event in a single run-on sentence of fully 119 words. In this Dari narrative, the peak is also marked by the cessation of a marked literary technique: retrogressive devoicing.

From a phonological standpoint, this is not such a strange thing. The emphasis of the climax is likely to cause extra stress, in effect counteracting the devoicing that might have occurred. The same counteracting phenomenon occurs at other points in the narrative: ironic twists of plot or pivotal events. One such plot twist occurs just before the climax and is closely linked to that climax as a suspension in the story line (#15). One might expect the final /n/ to be devoiced but it is not. Here a particularly ironic turn of events takes place. The two teenagers are riding a motorcycle when suddenly an old lame man appears on the empty street. They hit the old man and break his leg--his one good leg. It is this sentence--'ebrahim poi xubisa sikastan' (Ebrahim broke his good leg)--that lacks the expected devoicing. As in the Hemingway short story, we find marking via contrast.

CONCLUSION

This use of retrogressive devoicing in Dari is not the isolated occurrence of a single speaker or a single narration. It is an established story-telling device. I recently taped an Afghan refugee who, in relating the invasion of Kabul by the Soviets and his subsequent escape from the city, made dramatic use of devoicing. I have heard the same kind of phenomenon from speakers telling jokes and humorous stories. I am not aware of devoicing occurring in genre other than narration but I have not had a chance to actively study other kinds of texts.

This is not to say, of course, that speakers consciously use this device. My informant who narrated the story in the study, in fact, vehemently denied that he did any such thing. Like native speakers everywhere, he was simply trying to communicate ideas; and the listeners, like listeners everywhere, were simply absorbing the message, not concentrating on the medium by which that message was communicated. The speaker intended to say bud, thought he said bud, and the listener heard bud because that was what she anticipated she would hear. It was only the tape recorder that picked up but.

While devoicing in Dari, especially in genre other than narrative, warrants further investigation, it is clear that this prosodic feature plays an important role in narrative structure. Like other intonational features, this retrogressive devoicing marks grammatical as well as semantic units, guiding the listener through the progression of the story. Though Dari may not be unique, it is an interesting example of phonological marking of higher level units. Devoicing consistently marks grammatical units from the clause all the way up to the narrative as a whole. At the same time semantic constraints also affect the devoicing of phonological units. Though there remains much more to be said on the subject, it is clear that phonological variation is not just lexically-conditioned, but grammatically and semantically conditioned as well.

REFERENCES

- Longacre, Robert. 1983. The Grammar of Discourse. New York: Plenum Press.
- . 1984. Theory and Application in Processing Texts in non-Indoeuropean Languages. Hamburg: Helmut Buske Verlag.
- Pike, Kenneth and Evelyn G. Pike. 1983. Text and Tagmeme. Norwood, N.J.: Ablex.

APPENDIX

SECTION A

13. ebrahim xost xud-i kontrol kona/ na-tona-`st/
 ami mardaka-ra amro-i motirsikel zaD//
 14. mardaka aftod/ i mard yak poi-is lan buD//
 15. ebrahim poi xub-is-a sikastan//
 16. xo/ motirsikel aftod o mo-`m aftod o
 ebrahim-`m aftod//

"Ebrahim wanted to gain control but he couldn't. He hit that man with the motorcycle. The man fell. That man had one lame leg. Ebrahim broke his good leg."

SECTION B

21. balakada az kot-i sangi de sar-i kabul meraft-im/
 az sar-i kabul de sar-i nao meamad-im/
 mantahoi corpoi-i de sarei son-i mo buD//
 22. amesa corpoi-i mula qadir-a enteqol meDAD-IM//
 23. balakada da kort-i nazdik-i maiadan tairo-i kabul/
 tasmim g`rafta sud ke mula qadir/
 ke ebrahim ba mula qadir dahudud-i du hazar
 afgani bitA//
 24. so-bar-is du hazar afgani dad/
 wo ebrahim/ ba qaro-i qanun-i islam/
 majbur bud ke salaq bizaN-Is//
 25. ebrahim da sara mez capa aftod/
 mula amro-i bist dafa salaq zaD-Is-A//
 26. o mula qadir-a du hazar rupa bar-is dad/
 o balakada mula qadir pas kotaman raft/
 o ma tarif amrikoi amad-`m/
 du sol bad-is ebrahim tarif amrikOI AMAD//

MARGIN: Finis and Sign Off

27. dega enami qasa-i MULA qADIR-Ist//
 28. qAsA xALAs sUD//

"Finally we went from Koti Sangi to Shari Naw; we came from Shari Kabul to Shari Naw. In essence, the bed was over our shoulders. Always we moved Mullah Kadir on the bed. Finally, in a court near the Kabul Airport, a decision was made that Ebrahim give Mullah Kadir around 2000 afghanis. So he gave him 2000

afghanis and Ebrahim, according to the laws of Islam, was to be flogged. Ebrahim fell face down on the table. A mullah flogged him 20 strokes and he gave Mullah Kadir 2000 rupees, and finally Mullah Kadir went back to Kotaman, and I came to America. Two years later Ebrahim came to America.

This is another story of Mullah Kadir. The story has ended."

VESTIGES OF ORAL TRADITION: AN ANALYSIS OF ALICE
CHILDRESS' LIKE ONE OF THE FAMILY

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Many people misconceive the concept "oral tradition" thinking its meaning is elusive or thinking it goes back only a few generations. The concept though is not as enigmatic as its name suggests.

An oral tradition in a society, culture, or subculture is a tradition, habit, or custom of transmitting and preserving the past and knowledge by word of mouth (Miller 1980; Foley 1986). It is a "chain of testimonies," which, characteristically, "have been transmitted from one person to another through the medium of [spoken] language" (Vansina 1965: 19 & 20). Performances, statements, songs, poems, lists, narratives, sermons, prayers, and other oral productions are transmitted "by heart"; they are not recorded in writing (Miller 1980; Vansina 1965, 1980). Numerous stories, histories, and literary classics, such as Aesop's **Fables**, the biblical gospels, **Sir Gawain and the Green Knight**, and the *Iliad* and the *Odyssey* were passed along and preserved by troubadours, story tellers, balladeers, and others via the oral tradition (Downs 1979; Foley 1986).

Oral tradition "roots," in fact, run deeply among homo sapiens. Modern day, thinking humans have inhabited the earth between 30,000 and 50,000 years whereas the earliest writing has been used for 6000 years only (Ong 1982). Foley (1986) attests to an "indisputably general phenomenon: no matter where we look in the world, we find either traces of an oral tradition that preceded (and in some cases still subsists alongside) written traditions or an ongoing oral tradition still very much alive"(2). Clearly, oral tradition is "native" to human existence.

A definition of black oral tradition is derived from the features given above. Black oral tradition refers to a tradition, established in black culture, of passing on knowledge and of communicating information by word of mouth. Information is learned, recalled, and passed along to others orally (Vansina 1980).

That African society is an oral one with a long tradition of orality is clearly substantiated. Most African cultures did not use the written word until this present century (Miller 1980). Black Africans have traditionally educated and entertained their people via oral communication, not books. Praise poems, as an oral tradition, unfold the history of past and present, keeping past events in mind. "They educate the people by informing them of these past happenings, and they educate . . . by instilling the culture in the young . . ." (Cooper 1983: 2). Family

history, myths and legends, proverbs, riddles, stories, trades, societal roles, and speaking skills, among other traditions, have been taught and learned by word of mouth (Cooper 1983).

Black American culture, too, is an oral culture which preserves a tradition of orality. Anthropologists, sociolinguists, historians, folklorists, and ethnographers of communication generally accept the view that African oral tradition has survived as a "cultural carryover" to North and South America, where West Africans were deposited during slavery (Hughes & Bontemps 1958; Berry & Blassingame 1977; Fisher 1980; Ong 1982; Cooper 1983; Erickson 1984). Cooper (1983), in fact, proclaims a "cultural carryover" of oral tradition to blacks "throughout" the world. Herskovits (1966), in early research, was convinced of a cultural connection between Africans and their descendents in the New World. He observed that Blacks in not only the U.S. but also in Surinam, Guiana, Haiti, Santo Domingo, and the British, Dutch, and Danish West Indies have varying proportions of African elements.

As a result of living in a closed world where acquisition of literacy was denied them, black Americans maintained a tradition of orality (Hughes & Bontemps 1958; Berry & Blassingame 1977; Dance 1978; Fisher 1980). Dance (1978) even asserts that black oral tradition in the U.S. is "probably unmatched, and certainly not surpassed, by that of any other group in America" (xvii). In any event, several "cultural carryovers" have been documented. "It would take volumes," according to Berry & Blassingame (1977), "to describe all of the cultural elements the slaves brought with them from Africa" (509). Proverbs, names, beliefs of and about witches, medicine men and ghosts, use of and similarity in folktales, woodcarving, taboos, funeral rites, music, dance, and religious practices are some examples of "cultural carryovers" (Hughes & Bontemps 1958; Berry & Blassingame 1977; Dance 1978; Fisher 1980).

Skill in verbal art has also been identified as a "cultural carryover," which was passed along from slave ancestors to twentieth century blacks. Slave greetings, courtship rituals, and toasts evidenced rhythmic patterns and agnostic behavior that are present today in the dozens, prayers, sermons, and toasts (Berry & Blassingame 1977). Erickson (1984) notes that this cultural connection is accepted almost as a "truism" by ethnographers of communication and folklorists. "However much debate there is regarding the extent of African survivals, many scholars accept the veracity of the Ashanti proverb 'Ancient things remain in the ears'" (Berry & Blassingame 1977:516).

Black oral tradition survives today in the U.S. in a culture that is not literally "purely oral" but that "retains enough oral residue" (Ong 1982:68) to remain attentive to the spoken word and human interaction. Vestiges of black oral tradition, it is my contention, survive today, especially, in modern black literature. Fisher (1980) and Hughes & Bontemps (1958) relate that oral tradition "informs" black literature. Black artists, particularly women, have drawn upon and continue to draw upon

their oral heritage in order to preserve it and to pass it on to ensuing generations. Oral tradition is transmuted to a literary form: folklore, stories, songs, sermons, prayers, poems that build on the past are recorded in writing as an embellishment to the shared experiences of black people (Fisher 1980).

Oral tradition, surely, has informed Alice Childress' work, Like One of the Family: Conversations from a Domestic's Life (1986). Childress, inadvertently or not, gives added life to oral tradition.

As it is structured in its entirety, the text itself consists of sixty-two conversations, ranging from two to three pages in length each. Childress relates the adventures of a black maid, Mildred, the protagonist, who tells her friend Marge about her daily experiences. The setting is New York City during the 1950s. One standard piece, "I Go To Church," begins (93):

Well, Marge, I went to church last Sunday....No, the doors did not cave in on me! And if you're going to think up jokes, I wish you'd think of new ones. It's true that I don't go very often but you know most folks go 'round Christmas and Easter time, so I thought I would surprise my pastor by goin' a week early this timeOh, the sermon was so-so, and I saw a lot of friends that I hadn't seen in a long while, but wait until I tell you what happened just as I was leavin'!

Childress' text is marked by a number of oral tradition features enumerated by Olson (1977) and Ong (1982) as characteristic of oral language. A discussion of the two most prominent features follows: background information followed by the occurrences in the text.

First, oral language associated with oral tradition evokes an established closeness and participation. Members of oral cultures become close due to the fact that they are embedded in a "lifeworld" (Ong 1982) where human interaction is focal. Speech sets up conditions for close engagement, involvement whereas writing sets up conditions for distancing, personal disengagement. Speech serves an interpersonal function; there is a direct relation between audience and speaker; they collaborate. The speaker selects subject matter and wording, keeping the audience's interests, emotions, values in mind, producing what the audience will tolerate. The audience participates, becomes involved by responding verbally or non-verbally.

Secondly, oral language used in oral tradition is agonistically toned. Oral peoples engage in verbal and intellectual combat. This feature occurs naturally, arising out of context, the human lifeworld. When the human lifeworld is central, a natural consequence is to focus attention on human interactions, one of which is struggle. "Proverbs and riddles are not used simply to store knowledge but to engage others in verbal and

intellectual combat: utterance of one proverb or riddle challenges hearers to top it with a more apposite or a contradictory one" (Ong 1982:44).

Involvement is discernible in Childress' text on both the sentence and discourse levels. For the former, the use of ellipses evinces a call for involvement.

Childress institutes a systematic, almost totally predictable pattern of ellipsis usage. She depends on this form of punctuation consistently; the text is heavily laden with ellipsis marks. In the majority of places in the text, ellipsis marks occurring sentence-internally denote Mildred's breath pauses or thought units:

Another thing...public schools were not started by parents who were content with private ones (176).

They ate up one can of condensed milk a day...a tablespoon in a glass of water...that's how they got their milk (157).

Ellipsis marks which occur sentence-initially denote involvement from Mildred's friend, Marge:

Listen to me, Marge, and stop crocheting that doily...Oh, is it a chairback?...No, I don't want you to teach me how to make one 'cause I got other things on my mind (38).

Now don't laugh, Marge, because I'm dead serious....Oh, yes, it is very possible for me to get serious! (44)

...What?...Oh, that's mighty nice of you, Marge...(18).

In the latter set of examples, Childress adheres to oral traditional style. She allows room for participation, involvement from Marge. Mildred calls out to Marge and she responds, participates. The call takes the form of direct address: "Hi Marge," "Girl," "You know one thing, Marge?" "And I would, wouldn't you, Marge?" Although readers are not privy to Marge's interjections and responses, Childress provides **opportunities** for Marge's comments. The fact that Childress does so demonstrates the author's use of one key element of oral tradition. In this way, she provides continuity for black oral tradition.

On the discourse level, involvement is antiphonal, arising out of a call and response interaction between the speaker, Mildred, and a larger audience.

Call and response exchanges in the U.S. have become formalized, in particular, in the sermonizing typical of black preachers. In a seminal study, Rosenberg (1970) observed a "distorting noise" from audience members and determined its functional importance. The entire congregation plays a vital role in the sermons; it is as much a part of the sermons as the preacher. It participates and expresses itself freely, becoming actively involved in the oral production.

In nineteen percent of the conversational pieces, Mildred, in the manner of the evangelical preacher, calls out to domestic workers, especially black domestics, and they respond in a fashion similar to the congregation's. Marge is not the sole addressee, yet, in many instances, she serves as a chimeral representation of the larger targeted audience. The call is tantamount to Mildred's pronouncements, her messages, which arouse the audience's attention and interest. The call for audience involvement is recognizable in the following (36):

If I had a child, I would want that child to do something that paid better and had some opportunity to it, but on the other hand it would distress me no end to see that child get some arrogant attitude toward me because I do domestic work. Domestic workers have done a awful lot of good things in this country besides clean up peoples' houses. We've taken care of our brothers and fathers and husbands when the factory gates and office desks and pretty near everything else was closed to them; we've helped many a neighbor, doin' everything from helpin' to clothe their children to buryin' the dead...Yes, mam, and I'll help you to tell it!

Mildred pontificates on subject matter which the audience values and feels is urgent and true. It must feel the urgency and truth of Mildred's words before it can become involved. The last line of the excerpt shows Mildred's direct call to domestic workers. **You** does not refer to Marge alone but to the larger readership. Mildred performs a speech act: she speaks of telling others about the contributions of domestics and performs the act at the same time, which prompts the audience to become involved. Mildred predisposes her listeners to nod their heads in agreement, become her amen corner, encourage her to continue on.

Not only does Mildred call out to domestic workers but also to an even larger, more general audience. This call and response interaction, again, establishes involvement. Seventy-nine percent of the conversations are tailored for mass appeal and evince a call for interaction from Mildred. Notably, the conversation titled "Bubba" helps to illustrate this point.

"Bubba" is a moving exposé on the inequities built into American society against blacks, especially black males. Mildred shares an experience with Marge concerning her sister, Florence, and Mildred's nephew, Bubba, who's "after gettin' himself in trouble....Shoutin' about civil rights and sendin' off petitions and carryin' signs in front of movin' picture theatres,... criticizin' **anybody's** government **any time** (38)!"

Well, I sat Bubba down and I says: 'Bubba, why don't you behave and stop worryin' your mother?' ...'Aunt Mildred ...hurtin' mama is the last thing in this world I'd want to do....Aunt Mildred, I want to be free, I want some of everything there is to have, I want decent jobs, I want

to go to any school that's teachin' what I want to learn, I don't want to ride the back of these buses!' ... 'Don't nobody have to ride the back of the bus up here! You're in the North! Mildred he is in the North and yet always sayin' things like that!' ... 'I want to go down South and ride too, also North, East and West! I got rights that I want to use....Are we **free**, Aunt Mildred?' ...after I thought for a while I said 'No.' ... 'Aunt Mildred, I don't have to tell you about our troubles. You know how we're treated, I'm tired of bein' kicked around and mocked.' 'Go on, son,' I said. ... 'I can't close my eyes, ears and mouth and swallow down my manhood. I can't sing no "Tom Song" about "All is well." I can't crawl around and be content to eat my crust of bread and sleep a restless sleep.... It's wrong, wrong, wrong!'

When the full discourse is considered, as in this instance, it becomes clear that Childress wishes her main character to address an audience beyond Marge. The subject matter on which Mildred expounds, again, is the call for involvement. The topic is not totally outdated, yet is still one of relevancy, truth, urgency. Because of this, the audience members feel empathetic. They can relate to the situation and, in turn, become closely engaged. They accept Mildred's call for inter-action and respond verbally with words of cheer, praise, approval and non-verbally with sighs, groans, shivers, and nods.

Agonistically toned language, the second feature associated with oral tradition discussed here, is marked in the conversations. Mildred embodies the consummate verbal artist. She speaks powerfully and persuasively, enabling her to hold readers' attention. Even more, she engages in verbal and intellectual confrontations, taunting her adversaries, guilefully leading them to a deadly demise, for she inevitably "caps" the agonistic routines. Agonistic behavior manifests itself in the example below (140-41):

Honey, I mean to tell you that we got a job that almost nobody wants! That is why we need a union! ...it would sure be a big help and also keep you out of a lot of nasty arguments! For example, I'd walk in to work and the woman would say to me, 'Mildred, you will wax the floors with paste wax, please.' The I say, 'No, that is heavy work and is against the union regulations.' She will say, 'If you don't do it, I will have to get me somebody else!' Then I say, 'The somebody else will be union, too, so they will not be able to do it either.' 'Oh,' she will say, 'if it's too heavy for you and too heavy for somebody else then it must be also too heavy for me! How will I get my floors done?' 'Easy,' I say, 'the union will send a **man** over to do things like paste wax.... and all such.' She will pat her foot then and say, 'Well!

That will cost me extra!...'Exactly,' I will say, 'cause it is extra wear and tear on a man's energy and wear and tear on energy costs money!' ...All right, suppose she says, 'Never mind, I don't want you or anybody else from that union, I will search around and find me somebody who does not belong to it!' Well, then the union calls out all the folks who work in that buildin', and we'll march up and down in front of that apartment house carryin' signs which will read, 'Miss So-and-so of Apartment 5B is unfair to organized houseworkers!' ...The other folks in the buildin' will not like it, and they will also be annoyed 'cause their maids are out there walkin' instead of upstairs doin' the work. Can't you see all the neighbors bangin' on Apartment 5B!

Black oral tradition continues to inform black literature. Black writers "dip into the richness" (Hughes & Bontemps 1958: xiv) of black verbal traditions, linking generations together as well as preserving its unique features. Without these features, black literature would be lackluster. "To read black literature strictly as history or sociology is to miss the wealth of this verbal complexity and the imaginative transformation of oral forms into the literary art that is at the heart of so much modern black literature" (Fisher 1980:140). In a vein similar to those who have come before her, Paul Lawrence Dunbar, James Weldon Johnson, Jean Toomer, Zora Neale Hurston, and others, Alice Childress has been well informed of black oral tradition and has succeeded in passing it on to future generations. Involvement and agonistic behavior are a *sine qua non* in **Like One of the Family**. Ancient things **do** remain in the ears. Black oral tradition lives on.

BIBLIOGRAPHY

- Abrahams, Roger D. 1983. The Man-of-Words in the West Indies. Baltimore: The John Hopkins Press.
- Berry, Mary and John Blassingame. 1977. "Africa, Slavery, and the Roots of Contemporary Black Culture." Massachusetts Review 18, 3:501-516.
- Childress, Alice. 1986. Like One of the Family: Conversations from a Domestic's Life. Boston: Beacon Press.
- Cooper, Grace. 1983. "Oral Tradition in African Societies." Negro History Bulletin 46, 4:1-3.
- Dance, Darly Cumber. 1978. Shuckin' and Jivin': Folklore from Contemporary Black Americans. Bloomington, Ind.: Indiana University Press.
- Downs, Robert B. 1979. "The Oral Tradition." In Jane Wilson, The Story Experience. Metuchen, N. J.: The Scarecrow Press, Inc., pp. vii-xiv.
- Erickson, Frederick. 1984. "Rhetoric, anecdote, and rhapsody: Coherence Strategies in a conversation among Black American Adolescents." In D. Tannen, ed. Coherence in Spoken and Written Discourse. Norwood, N. J.: Ablex, pp. 81-154.
- Fisher, Dexter, ed. 1980. The Third Woman: Minority Women Writers of the United States. Boston: Houghton Mifflin Company.
- Foley, John Miles, ed. 1986. Oral Tradition in Literature: Interpretation in Context. Columbia, Missouri: University of Missouri Press.
- Harris, Trudier. 1986. "Introduction." In A. Childress, Like One of the Family. Boston: Beacon Press, pp. xi-xxxiv.
- Heath, Shirley Brice. 1982. "Protean Shapes in Literacy Events." In Deborah Tannen, ed. Spoken & Written Language: Exploring Orality & Literacy. Norwood, N.J.: Ablex, pp. 91-117.
- Herskovits, Frances, ed. 1966. The New World Negro: Selected Papers written by Melville J. Herskovits. Bloomington, Ind.: Indiana University Press.

Hughes, Langston and Arna Bontemps, ed. 1958. The Book of Negro Folklore. New York: Dodd, Mead & Company.

Kochman, Thomas. 1981. Black and White Styles in Conflict. Chicago: The University of Chicago Press.

Miller, Joseph C. 1980. "Introduction: Listening for the African Past." In J. Miller, ed. The African Past Speaks: Essays on Oral Tradition and History. Hamden, Conn: Archon Books, p. 1-59.

Niles, John D. 1983. Beowulf: The Poem and Its Tradition. Cambridge, Mass.: Harvard University Press.

Olson, David. 1977. "From Utterance to Text: The Bias of Language in Speech and Writing." Harvard Educational Review 47:257-281.

Ong, Walter J. 1982. Orality and Literacy: The Technologizing of the Word. New York: Methuen.

Rosenberg, Bruce. 1970. The Art of the American Folk Preacher. New York: Oxford University Press.

Scheub, Harold. 1984. A Review of African Oral Traditions and Literature. Los Angeles, California: The ACLS/SSRC Joint Committee on African Studies.

Vansina, Jan. 1965. Oral Tradition: A Study in Historical Methodology. Translated by H. M. Wright. Chicago: Aldine Publishing Company.

Vansina, Jan. 1980. "Memory and Oral Tradition." In J. Miller, ed. The African Past Speaks. Hamden, Conn: Archon Books, pp. 262-279.

VII

HISTORY OF LINGUISTICS

JUSTUS GEORG SCHOTTELIUS (1612-76) AND THE DEVELOPMENT OF THE GERMAN LANGUAGE

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When Hermann Paul, at the time of publishing the first edition of his *Prinzipien der Sprachgeschichte* in 1880, made the claim that any approach to language investigation, if it deserved to be called scientific, had to be a **historical** approach, he was not exactly treading new ground, but was, instead, stating with specific reference to language what had been all along the very common definition of the **practiced general** scientific approach. To obtain scientific knowledge of what a particular subject matter is, requires obtaining knowledge of how that particular subject matter has come to be what it is. Up to the last two decades of the 19th century no scholar would have had any reason to question the validity of that time-honored procedure which was almost exclusively followed.

The subsequent evolution of the **synchronic** approach vastly **expanded** the available procedural facilities, but certainly did not supersede them. A readjusted **historical** method, progressively refined, and appropriately renamed as **diachronic** method, has emerged and asserted its rightful place beside the synchronic-functional approach. There is, I am sure, consensus among a majority of linguists as to the **supplementary nature** of the two and the firmly held belief that both approaches are required for a language research which strives for completeness and comprehensiveness of its results.

From this rather lengthy preface I derive my succinct opening line which at the same time serves as the motivation for the choice of my particular historical subject:

To know what is, one has to know what was.

Serious grammatical studies in Germany predate the 17th century. However, the investigations undertaken until then were almost exclusively aimed at languages other than the vernacular German.

The reasons for this lack of interest in the home-grown language were not uniquely confined to Germany. The conditions prevailing there applied with equal force to most other European language communities.

Latin and Greek, and to a lesser extent also Hebrew, were the languages of indisputable prestige and very much more worthwhile examining than the ordinary people's language. To study them exhaustively not only constituted a dutiful obligation owed to those three "holy languages" for religious reasons. It also carried with it the promise of yielding prestigious rewards such as could never be gleaned - according to the belief prevailing at

the time - from a preoccupation with an object as unworthy of scientific treatment as the ordinary vernacular "idioms" were thought to be.

To posit the existence of a **German Language** for the 17th century would only be partially correct. Supraregional communication via one German language was possible, but only to a selected few. The vast majority of the German people were monolingual in that they spoke individual vernacular dialects which were by no means easily understandable to each other.

On a more official level the need for supraregional communication was superbly fulfilled by the overpowering use of the Latin language. Universities had no use for German, neither as medium of instruction nor as a subject of scientific investigation. In 1687 Christian Thomasius, as one of the very first, started giving lectures in German at the University of Leipzig, arguing that it was a requirement of reason to eventually replace Latin as medium of instruction. He referred to "the example of other cultured nations, most especially to France, which could show how it was to be done" (Rückert 1875:2.368). [Translations from the German here as elsewhere are mine.] His courageous words caused a stir (Rückert 1875:2.368), but in spite of fervent efforts by men like him, things were slow to change. As to the social sphere, the members of high society felt no particular urge to fall back on German as their "language of culture". It became much more fashionable to embrace French as the readily available means of communication marked by unsurpassable excellence.

Curiously enough, the foundations for a radical change had already been laid by Martin Luther's translation of the Bible into German which began appearing in 1523. The first complete edition of the Bible was available in 1534. Luther's language was tailored to the needs of the ever-growing number of the underprivileged who kept stepping forward in order to claim for themselves a greater share in shaping public and religious life. Moreover, Luther's language had been proving itself to an increasing degree as a supraregional medium, which was not only fairly well understood north and south in all corners of the land, but was also, on the whole, enthusiastically received even in German language areas from which Luther's idiom most significantly differed. This statement does, of course, only apply to the **Lutheran** population, not to the Germans in general. The division of the country into two feuding religious camps and the ensuing **European** 30-year war had without any doubt a severely retarding impact on the development of a common German language.

Another important building block on the way towards a common standard language was, or at least could have been, the language of the **MHG Minnesang** at the end of the 12th and the beginning of the 13th century. Even a cursory study of that language would easily convince even the skeptic that the works of the MHG classical period of German literature are characterized by a high degree of sophistication, precision, melodiousness, and beauty, all criteria said to be absent from the German of the early 1700s. Moreover, the language of the MHG **BLÜTEZEIT** is produced, and enjoyed, by the people of that time in the full knowledge of it

possessing all those qualities enumerated. And for the first time on German soil language begins to play a role in the development of a tendency towards national unity. Lastly, for the first time a strong connection is perceived between a **cultivated language and the quality of life** within the speech community.

What was clearly missing during the MHG period and continued to be conspicuously absent until about the middle of the 17th century is a coherent effort of reflection on the German language, a serious probing into what language is, what it should be or could be, in other words, a scientific approach to language. German was still very far from being elevated to the status of an objectified **subject matter** of scholarly endeavor.

Apart from the predominance of Latin, there were numerous other reasons why the vernacular language largely remained an altogether insignificant force as far as public and supraregional affairs were concerned. The following are some of the more important ones.

From its very beginning the Holy Roman Empire of the German Nation lacked a strong local center as the focal point of regional cultural or other public affairs activities. Consequently, no unifying ties could emanate from the center to combine at least **some major** regional features into a covering structure that all or most dialectal areas would desire to share. The decentralized form of government, climaxing in the emergence of a huge number of largely independent territorial states, many of them very small in size, diversified and dispersed in a seriously damaging way many characteristic features which ought to have been unified so as to form the basis for shared possessions of a nation.

Prior to the 17th century only one German emperor, Rudolf I of Habsburg (1273-91), made an all-out effort to propel the German language into a role of prominence by proclaiming at the Reichstag at Nuremberg in 1283 (Weithase 1961:2.31) that "henceforth everything should be brought forth, negotiated, and discharged in the German language". There is no evidence that the proclamation had any immediate major impact. The same holds true for the subsequent confirmation and reenforcement of that proclamation by Emperor Maximilian I at the Reichstag at Cologne in 1512 (Weithase 1961:2.31). Public pronouncements on language use by themselves, especially within the framework of political conditions prevailing in the Germany of those days, could be expected to have but little effect or none at all, unless they were coupled with widely recognized achievements by prestigious grammarians or literary writers. For such achievements to occur, however, the time had not yet come.

To consider this background information is vital for an adequate identification and evaluation of the role which **Justus Georg Schottelius** or **Schottel** (both names are used interchangeably) played in the emergence of the German language as **Die HauptSprache**, or **The Common Standard Language**, of all Germans.

Schottel has been flatteringly called "the Jacob Grimm of the 17th century" (Jagemann 1893:410) and his main work the "barocke **summa philologica**" (Hankamer 1965:124). While it is always difficult to draw in absolute terms a comparison between

two scholars of different centuries without also taking into account the vastly different conditions prevailing at their individual times, the high degree of praise involved in that comparison may by no means be excessive, if one considers the long line of Grimm's grammatical predecessors and the handful of people who had worked with German grammars - and especially the limited scope of their work - prior to the labors of Schottel. In matters of intellectual power and force of deduction, on the other hand, Grimm may indeed have been superior to his distinguished predecessor.

All the same, the fact remains that Schottelius wrote the first complete descriptive grammar of the German language in German. He deserves ample credit firstly for the fact that he wrote it, but much more credit, secondly, for **how** he wrote it. We will have to elaborate on that.

A full appreciation of the significance of Schottel's achievements presupposes a brief survey of what his few forerunners managed to accomplish in their treatment of the German language. The first name that must be mentioned is that of **Aventinus** alias **Johannes Turmair** (1477-1534). The famed author of the Bavarian "Chronicle of the origin, descent, and activities of the age-old Germans" [up to 1519], wrote a Latin grammar in which, for the first time, German was employed "not any longer as a mere technical ancillary device ... Instead, the German form is often developed [as an entity] in itself and parallel to Latin" (Fricke 1933:116). This goes together with Turmair's shrewd - and certainly for the time truly revolutionary - reasoning that "it was equally impossible to talk German the Latin way as it was the other way round. 'Every single language has its own specific habit and special quality'" (quoted after Fricke 1933:116), an observation which constituted the first step on the long road towards equating German with Latin.

Grammars written in German, dealing with the German language, followed soon. There were four that predated Schottel, written by **Valentin Ickelsamer** (ca. 1537), **Laurentius Albertus** (1573), **Albert Ölinger** (1573), and by **Johann Clajus** (1578). What all those works have in common and what sets them distinctly apart from Schottel's grammar is that they "were modelled closely on the prevailing canons of Latin grammatical writing" (Percival 1975:250).

Publication of Schottel's grammatical work began in 1641 with his **Teutsche Sprachkunst**. His most prominent work, **Ausführliche Arbeit Von der Teutschen HauptSprache** [= AATH] of 1663, amounts to a collected, revised, improved, and enlarged edition of the **Teutsche Sprachkunst** (first printed in 1641) and **Teutsche Vers- oder Reim Kunst** (first printed in 1645).

In the following I will discuss briefly:

1. Schottel's general attitude towards the study of German.
2. The specific nature of his German Grammar - as far as both his theoretical and his practical approach is concerned - as manifested in his **Teutsche HauptSprache**.
3. Schottel's artistic dimension.

4. The role of the **Sprachgesellschaften** (Language Societies) and Schottel's involvement in their work.
5. The impact of Schottel's overall activities on his contemporaries and successors.

1. Schottel's general attitude towards the study of German

The scientific knowledge on language accumulated by the time when Schottel began his work had been gained from the study of non-vernacular languages, notably of the three "holy languages", mentioned before. Schottel put that knowledge to use for the benefit of German, but in such a way that he distanced himself from grammatical norms developed from the investigation of Latin. He preferred to rely on his own probing into the German language, thus deriving his language criteria from the immediate contact with what he came to establish, through his innovative procedure, as his scientific subject.

Schottel broke new ground in several respects. The four mentioned grammarians who wrote German grammars before him were, as we stated, still widely dependent upon the principles of Latin grammar. Their dependency status was due, at least in part, to their failure to recognize that the German language could, and should, play a role equal in importance to that of Latin. Schottel did acquire that insight, but he went even one step further. He was not content with claiming merely an equal role for German. In his estimation German outdistanced Latin and Greek in antiquity as well as by the richness of its words and the versatility of their use. For Schottel German was second only to Hebrew in age and general significance.

The trend towards placing a greater focus on the 'language of the people' - as opposed to Latin as the language of the learned - was by no means initiated by Schottelius, nor did it originate within the German-speaking communities. Due to the emergence of a better climate for establishing centralized government, a stronger sense of patriotism, and a greater coherence and solidarity among the members of high society, both France and Italy had moved much swifter and earlier, and hence had progressed much further, in gaining for their respective languages a place of prominence than the Germans had been able to.

Schottel's extraordinary success is based on the fact that he was much more than merely a scholar specializing in the field of grammar. For his grammatical work to become relevant and influential he had to provide a framework persuasive enough to show the cogent relationship of grammatical studies to numerous other fields of much greater and much further-reaching consequence. Perhaps the single most essential item which must be mentioned here is his insight that the state of a nation is largely dependent upon the state of its language. Therefore, the improvement of language is much more than a private concern of a group of enthusiastic academicians. "A change of language is followed by a change of customs" (Schottel [quoted after Hecht] 1967:6*).

This statement contains a host of implications. First and foremost, it appealed to the patriotic feelings of the Germans.

Caring for their language now became for the Germans a matter of patriotic priority, an inescapable duty. Second, the statement attempts to change the general outlook on language. The "mere" communication aspect is relegated to a second-place position in favor of language as a force crucial for making, or unmaking, man as a human being. "Churches and schools, law and justice, war and peace, trade and traffic, what we do and what we do not do is preserved with us, kept, and handed on through the German language. Through it we approach God and enter heaven; we might even say that through it we keep body and soul together" (Schottel 1641, Vorrede).

The German language Schottel refers to is as yet a non-existing entity. The grammarian does not, and cannot, create it, but he helps substantially assuring its birth and furthering its growth. THE German language cannot be any single dialect. Schottel abhorred dialectal speech because for him it constituted a form of speech inescapably flawed: "Omnibus dialectis aliquid vitiosi inest." ("All dialects are defective in some respect." Schottel 1663:174.) He distrusts the spoken word in general. And since the common man, without the help of the language specialist, through negligence may corrupt his language rather than use it in its purest form, it is up to the grammarian to restore the German language to its original dignity and purity. Since only the learned know how to write, this entails that the **standard** language is to be derived from the **written** language, i.e., from the usage of the learned. Hence Schottel's definition of what constitutes the German **HauptSprache** or **Common Standard Language**: "The High German language [i.e., Common Standard German Language] ... is not actually a dialect but lingua ipsa Germanica, sicut viri docti, sapientes et periti eam tandem receperunt et usurpant" ("... the German language itself such as wise and experienced scholars at long last have retained it and are using it." Schottel, *ibid.*).

Rejecting the **spoken** word and establishing the **written** word as the principal foundation for the German **HauptSprache** has two important implications. One is that language is placed in a line of historical development. Schottel argued that with this "historical approach" much more reliable results are obtainable than by collecting data exclusively from the observation of everyday usage. Although Schottel's at best neutral attitude towards strictly **empirical** language studies is to be regarded, from our point of view, as a serious shortcoming, his aversion to the spoken word has to be viewed within the context of his time. It must also be noted that the shortcoming led to an interesting achievement. Speech was dissociated from the speaker, thus becoming more abstract, more objective, and hence more amenable to qualify as a true subject of a truly scientific investigation. Additionally, severing the obviously strong connections between **speech** and **speaker** cleared the way for focusing on another relation which so far had largely gone unnoticed, the relation between what Schottel considered the **central** speech unit, the **word**, and the unit to which it refers, the **thing** in the real world.

2. The specific nature of Schottel's German Grammar

Schottel's **Ausführliche Arbeit Von der Teutschen Haupt-Sprache** provides an exhaustive summary of almost all of his language-related activities throughout his life. The approximately 1500 pages of this **Summa philologica** which Wolfgang Hecht classifies as being "not only Schottelius' **Summa** ... but aside from that also the **Summa** of his entire age [i.e., the time span between Ickelsamer and Leibniz]" (Hecht in Schottel 1967:7*), present the material in three sections. In the first section, coinciding with Book 1 (pp. 1-170) entitled **Zehn Lobreden von der Teutschen HauptSprache** [= 10 eulogies on the German Standard Language], Schottel surveys the work on the German language done so far by his predecessors and contemporaries. The second section, comprising Book 4 (791-997), deals with **Teutsche Verskunst oder Reinkunst**. Finally, the third and major section contains in three books Schottel's grammatical theories and practical investigations. Book 2, **Wortforschung der Teutschen** [word research of the Germans = etymologia], Book 3, **Wortfügung** [derivation and compounding], and lastly Book 5 with seven subsections. They include etymological studies, a treatise on German proverbs, and **Instruction and information on proper conversion of foreign expressions into German**. In its most extensive part (1269-1450), **Die Stammwörter der Teutschen Sprache nebst jhrer Erklärung** [The stem words of the German language together with their explanation], Schottel lists "the roots or stem words of the German language" (1271). His listing contains about 5000 entries. They were supposed to form the nucleus of a dictionary of all German words, a project, keenly supported by Leibniz, which Schottel could not carry out any more. The concluding subsection 7 gives in Latin a 15-page table of contents and summary.

Stem words are the building blocks of languages. They are their smallest elements - one syllable in size - and they are characterized by 'distinctive features' which make a specific language unique.

Schottel elaborates on the "perfection" of the stem words in the 4th eulogy entitled "The natural origin and superior qualities of the German stem words" contained in Book 1 (49-65). They are perfect because

1. they are of native origin and do not consist of foreign letters
2. they sound well and express their object properly
3. their number is complete and comprehensive
4. they can be sufficiently expanded and derived
5. they can be combined to form all types of **Doppelungen** [compounds] and **Zusammenfügungen** [derivations] (50-51). The language expert, by Schottel's definition much more than a 'mere' grammarian, has to search out and define the stem words of a particular language. The search involves digging into the past and reaching through to what was believed to be the ideal original state. This amounts to a search for the **Grundrichtigkeit**, a term listed already in the title of Schottel's main work and crucially important for understanding Schottel's major objectives. It aims at

establishing what had been accepted in language as valid for a very long time and making it the model for the language of the present. It further involves the conviction that language is governed by rules. Those rules have to be identified by the grammarian. He has the obligation to make them known to the language users so as make them aware of the need to restore and retain the original beauty, validity, and strength of the language. The larger context of this endeavor is spelled out by Hecht: "In this way the idea of the *Grundrichtigkeit*, a term belonging to the philosophy of language, combines with the great cognitive task of the century to detect the regularity in the structure of what exists" (Hecht in Schottel 1967:10*-11*).

Number and age of the stem words for Schottel determine the antiquity and worthiness of a language. The degree of purity of a language depends upon how large a proportion of the stem words have been kept "intact", i.e., free from contamination through foreign words. English in this regard gets a very poor grade, while the *Teutsche HauptSprache* ranges better than Latin and Greek in age and quantity of stem words and at least as well as those two in matters of purity. Only Hebrew is ranked higher than German.

Language purity was not only Schottel's concern. Many contemporaries, including Leibniz, and many popular organizations of the time were extremely keen and eager to point to the avoidability of excessive use of foreign elements when speaking or writing German. Schottel reached further than that by creating German terms where only foreign counterparts existed. He also made sure that German terms coined by others got recognition and came to be used regularly or more frequently (cf. Rückert 1875:2.293-94). Our German grammars today are full of terms originating with Schottel, e.g., *Sprachlehre*, *Wörterbuch*, *Zeitwort*, *Strichpunkt*, *Fragezeichen*, *Zahlwort*, to mention just a few (cf. Leser 1914:passim).

Schottel knows that languages change. He believes that the processes involved mostly bring about a deterioration, certainly not an improvement, of language. This is made clear especially by the last of the three causes of change which he cites: "The third main cause of change ... is the unrestricted negligence, the unthoughtful and unconsidered uncertainty of the common speech which ... leads to changes at the pleasure of the vulgar people" (Schottel 1663:166).

Schottel moved in huge steps away from a religious dependency of language studies and towards the study of his mother tongue strictly in its own terms. He opened up a new historical dimension by sensing that between the confusion of languages at Babel and the state of languages at his time some meaningful changes had occurred. But he is still far away from a truly historical concept of language development. He had undoubtedly acquired more than an inkling of what the true nature of the spoken language was - a functional system. His theory and practice in matters of, e.g., derivation and compounding attest to that. But he is still far away from a truly synchronic concept of language function. Nevertheless, his life's work merits our greatest ad-

miration, since in many respects we rely in our linguistic procedures today on results for which he substantially helped lay the foundations.

3. Schottel's artistic dimension

The grammarian, being primarily a scientist, is first and foremost responsible for identifying and preserving the **correctness** of language. In discharging his duty he only does partially justice to language. It requires the labors of an **artist** to discover and make explicit the **beauty** of language. This artist is the poet and the literary critic. The former creates works of beauty, the latter judges them and focuses on the inherent laws.

Schottel, in addition to his labors as a grammarian, attempted to be also the artist. He composed a sizeable number of poetic works (cf., e.g., Berns 1977:83-93), and his **Teutsche Vers-oder Reim Kunst** (also in AATH, 791-997) of 1645, constitutes an effort which rivals the **Buch von der deutschen Poeterey** (1624) by Martin Opitz in comprehensiveness, even if not also in substance.

Schottel's artistic endeavors are praiseworthy, but they hardly amounted to achievements of the kind he attained in the narrower field of grammatical language study. They are important, however, from a theoretical point of view in that they threw light on the interrelatedness of the grammatical and the artistic aspects of language study.

4. The Sprachgesellschaften and Schottel's involvement

Historiography did not treat the German **Sprachgesellschaften** of the 17th century very gently. There is no need to refer to particular scholars, because the 'rough treatment' dished out comes from numerous quarters. It should, therefore, suffice to quote one representative example. The more important of the two societies that deserve to be mentioned as **Sprachgesellschaften** of significant impact is the **Fruchtbringende Gesellschaft** [Fruitful Society], founded in 1617. For 33 years Prince Ludwig zu Anhalt-Köthen had been its most inspiring leader. Rückert (1875:2.258), commenting on the unhappy event of Prince Ludwig's passing away, asserts that "the Society with the death of its living soul, of Prince Ludwig, had already outlived itself completely". I regard this as rough treatment since the adverse characterization involved does not take into account that societies of this kind do not necessarily, in spite of pretentious naming ambitions, produce **fruitful results** by themselves. It seems to me that their main function is, instead, to create widespread enthusiasm and thereby enable the emergence of an appropriate climate which may inspire some extraordinarily gifted individuals, such as J.G. Schottelius, to become extraordinarily productive.

Schottel, not unlike others of similar stature, was never infatuated by those characteristics of the societies that just had to be endured. But there is no doubt that he profited from the societies, and he surely enriched their objectives and activities by supporting what he thought worthwhile and promising. He

became a member of the **Fruchtbringende Gesellschaft** in 1642, assuming the name **Der Suchende** [the searcher], and four years later he joined as **Fontano** the **Pegnesischer Blumenorden**, founded in 1644 by Harsdörffer and Klaj in Nürnberg. (For further information see Berns 1977 and especially Engels 1983.)

5. Schottel's impact on his contemporaries and successors

Schottel's lifetime coincides with the beginning of serious endeavors to accurately describe the German language. He has no rival when the question arises as to who was the most learned and also the most influential German language scholar of his time.

Numerous attempts have been made to compare Schottel with Leibniz. (Confer, e.g., the brilliantly written study by Schulenburg 1973.) The comparison in itself is unproductive, if not unfair. Schottel's work required a personality with qualities quite different from those demanded of Leibniz. Schottel was a genius in that he compiled all knowledge of the time on how to deal with language and, refining it somewhat, applied it to German, his native tongue. He activated the consciousness of many of his countrymen to take note of the phenomenon of language in general, of the mother tongue in particular. And he did that with singular success. Leibniz praises Schottel's grammar by stating that "we certainly surpass the French and Italians with this book as much as they surpass us in lexical studies" (Schulenburg 1973:292).

The assessment of today is best exemplified in the words of Wolfgang Hecht who may be considered one of the most knowledgeable among the current historiographers who deal with Schottel's period. He awards Schottel full credit for his grammatical work, but directs our attention to aspects that assume even greater importance. Schottel's **Ausführliche Arbeit** "which surveys the century's ideas and viewpoints on language in the most representative way, should arouse interest above all because of its contribution to intellectual history" (Hecht in Schottel 1967:3*). The dimensions involved include raising the level of national tendencies, improving scholarly procedures, and enlarging the scope of both language instruction in schools and language awareness among the members of the general public.

Richard von Damm, in 1912, has this appraisal for Schottel's scholarly activities: "Of all fields being treated by Germanistics today, we find the initial effort in his work" (1912: 583). Such an appraisal cannot be upheld any more in this day and age without some major reservations, but Schottel's work even in our day is, nevertheless, still very much worthwhile reading, last not least because of its impressive width and depth.

REFERENCES

Aarsleff, Hans. 1964. "Leibniz on Locke on language." **American**

Philosophical Quarterly 1.165-88.

- Berns, Jörg Jochen, ed. 1977. **Justus Georg Schottelius 1612-1676**. Braunschweig: Waisenhaus-Buchdruckerei.
- Besch, Werner et al., ed. 1984-85. **Sprachgeschichte. Ein Handbuch zur Geschichte der deutschen Sprache und ihrer Erforschung**. Berlin-New York: Walter de Gruyter.
- Damm, Richard von. 1912. "Justus Georgius Schottelius. Zu seinem 300. Geburtstag." **Die Grenzboten** 71,2.580-84.
- Engels, Heinz. 1983. **Die Sprachgesellschaften des 17. Jahrhunderts**. Giessen: Wilhelm Schmitz.
- Fricke, Gerhard. 1933. "Die Sprachauffassung in der grammatischen Theorie des 16. und 17. Jahrhunderts." **Zeitschrift für Deutsche Bildung** 9.113-23.
- Grimm, Jacob and Wilhelm. 1905. **Deutsches Wörterbuch**. Vol. 10.1. Leipzig: S. Hirzel.
- Gundolf, Friedrich. 1930. "Justus Georg Schottel." **Deutschkundliches. Friedrich Panzer zum 60. Geburtstag überreicht**, pp. 70-88, ed. Hans Teske. Heidelberg: Carl Winter.
- Hankamer, Paul. 1927 [1965]. **Die Sprache, ihr Begriff und ihre Deutung im 16. und 17. Jahrhundert**. Hildesheim: Georg Olms.
- Harms, Wolfgang. 1968. Review of Wolfgang Hecht, ed., **Justus Georg Schottelius, Ausführliche Arbeit Von der Teutschen HauptSprache (1663)**. Tübingen: Niemeyer, 1967. **Zeitschrift für deutsches Altertum. Anzeiger** 79.23-28.
- Jagemann, H.C.G. von. 1893. "Notes on the Language of J.G. Schottel." **PMLA** 1.408-31.
- Leser, Ernst. 1914. "Fachwörter zur deutschen Grammatik von Schottel bis Gottsched. 1641-1749." **Zeitschrift für deutsche Wortforschung** 15.1-98.
- Markwardt, Bruno. 1958. **Geschichte der deutschen Poetik**. Vol. I: **Barock und Frühaufklärung**. 2nd ed. Berlin: W. de Gruyter.
- Metcalf, George J. 1953. "Schottel and Historical linguistics." **Germanic Review** 28.627-58.
- Neff, L. 1880. **Über die Abfassungszeit von Leibnizens Unvoreiflichen Gedanken**. Durlach: Adolf Dups.
- Opitz, Martin. 1624 [1966]. **Buch von der deutschen Poeterey**, ed. Richard Alewyn. Tübingen: Niemeyer.

- Paul, Hermann. 1880. **Prinzipien der Sprachgeschichte**. Halle: Niemeyer.
- Percival, W. Keith. 1975. "The Grammatical Tradition and the Rise of the Vernaculars." **Current Trends in Linguistics**, ed. Thomas A. Sebeok. Vol. 13, **Historiography of Linguistics**, pp. 231-75. The Hague: Mouton.
- Rückert, Heinrich. 1875. **Geschichte der Neuhochdeutschen Schriftsprache**. 2 vols. Leipzig: T.O. Weigel.
- Schmarsow, August. 1877. **Leibniz und Schottelius**. Quellen und Forschungen zur Sprach- und Culturgeschichte der germanischen Völker, No. 23. Strassburg: Karl J. Trübner.
- Schottelius, Justus Georg. 1641. **Teutsche Sprachkunst, darinn die ... Uralte Hauptsprache der Teutschen auss jhren Gründen erhoben, dero Eigenschafften ... entdeckt und also in eine richtige Form der Kunst zum ersten Mahle gebracht worden**. Braunschweig: Balthasar Gruber.
- , 1643. **Der Teutschen Sprache Einleitung, zu richtiger gewisheit ... der Teutschen Hauptsprache**. Lüneburg: M. Dünckler.
- , 1645. **Teutsche Vers- oder Reim Kunst darin Unsere Teutsche Muttersprache, so viel dero süsseste Poesis betrifft, in eine richtige Form der Kunst Zum ersten mahle gebracht worden**. Wolfenbüttel: Selbstverlag.
- , 1663 [1967]. **Ausführliche Arbeit Von der Teutschen HauptSprache, worin enthalten Gemelter dieser HauptSprache Urankunft, Uralterthum, Reinlichkeit ... Unvergleichlichkeit, Grundrichtigkeit, zumahl die SprachKunst und VersKunst**. 2 vols., ed. Wolfgang Hecht. Braunschweig [Tübingen]: Chr. F. Zilliger.
- , 1676. **Brevis & fundamentalis Manuductio ad ORTHOGRAPHIAM et ETYMOLOGIAM in Lingua Germanica**. Kurtze und gründliche Anleitung Zu der RechtSchreibung Und zu der WortForschung In der Teutschen Sprache. Für die Jugend in den Schulen, und sonst überall nützlich und dienlich. Braunschweig: Chr. F. Zilliger.
- Schulenburg, Sigrid von der. 1973. **Leibniz als Sprachforscher**, ed. Kurt Müller. Frankfurt/Main: Vittorio Klostermann.
- Waldberg, Max von. 1891 [1971]. "Justus Georg Schottelius." **Allgemeine Deutsche Biographie**. Vol. 32.407-12. Berlin: Duncker & Humblot.
- Weithase, Irmgard. 1961. **Zur Geschichte der gesprochenen Sprache**. 2 vols. Tübingen: Max Niemeyer.

THE SOURCES OF MODERN SOCIOLINGUISTICS

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0. *Introductory Observations*

It appears to be a normal part of North American culture that when something is declared to be new, few people care to ask a question about what in effect distinguishes the allegedly novel idea or approach from the old. The past is soon forgotten and people are happy to be part of a trendy present which holds out the promise of becoming the future. There are of course reasons for this phenomenon, historical, socio-political, and economic; however, an analysis of these aspects is not my concern here. I'm simply trying to explain to myself why linguists on this continent usually lack a historical perspective of their own field of study and, as a result, can be easily persuaded into belief in claims of novelty, discontinuity, breakthrough, and revolution for a particular new product or, for that matter, a linguistic theory. I still recall my own astonishment about the enthusiasm of my teachers about 'sociolinguistics' during the late 1960s, which then was, as it is still today, largely associated with the name of William Labov. In this paper I refer mainly to this brand of sociolinguistics rather than the line of research usually pursued by scholars coming from sociology like Basil Bernstein in Britain (e.g., Bernstein 1971) and Joshua A. Fishman in the United States (e.g., Fishman 1972), which is better defined by the phrase 'sociology of language', or the lines pursued by others with anthropological backgrounds like Dell Hymes' 'ethnography of speaking' and John Gumperz' interactionist and discourse analysis approach (e.g., Gumperz 1971).

Given what I noted at the outset, I probably shouldn't have been surprised to find next to nothing on the history of 'sociolinguistics' when I first ventured to investigate the subject (cf. Koerner 1986). But I expected a scholar like Dell Hymes, who has written on other aspects of the history of linguistics during the past twenty-five and more years (cf. Hymes 1983, for a collection of his papers in this area), and who published, among other things, a book on the *Foundations of Sociolinguistics* (Hymes 1974), to have enlightened us on the origins, sources, and development of the field. However, one searches in vain for any such account in the bibliography of this prolific writer. The closest thing that I could find to date on the history of sociolinguistics was Yakov Malkiel's (1976) paper, which traces its development from Romance scholarship via dialectological work. There are of course a few textbook accounts of the 'history' of sociolinguistics (e.g., Wolfram & Fasold 1972:26-32), but they are rather short and totally inadequate, usually going little beyond acknowledging the existence of a link between work in dialectology and sociolinguistics. Some textbooks (e.g., Wardhaugh 1986) treat the subject without any historical perspective at all. This unsatisfactory situation promises to become remedied by the publication of the

two-volume Sociolinguistics handbook (Ammon et al. 1988), which is to contain a large section on "History of Sociolinguistics as a Discipline".¹

William Labov should not be expected to have written the history of sociolinguistics, of course, although his work shows much of the sources of his own background and approach as we shall see in what follows. The pioneering organizer of the modern field of sociolinguistics does not need to engage in history-writing; he is far too busy with regular research work, and he knows that his place in the annals of the discipline is assured. We also know the disastrous results of Noam Chomsky's forays into the ancestry of his own work. Apart from presenting us with a seriously distorted picture of the history of western linguistics, Chomsky's example encouraged others to produce similar Whig histories and, even worse, propaganda pieces of a particular faith. Yet a scientific field reaches its maturity only by becoming aware of its history and by becoming interested in having it documented. The present paper is little more than a first attempt to come to grips with the task of presenting the origins of sociolinguistics, an area of research generally and erroneously thought to have arisen fully developed in the mid-1960s, perhaps with the proceedings of a UCLA conference devoted to the subject (Bright 1966).

1.0 *The Sources of Modern Sociolinguistics*

My own research revealed that we could envisage the broad Labovian type of sociolinguistics to be the confluent, the synthesis, of various lines of research that go back at least several generations. The link between dialect geography and sociolinguistics has been made by various scholars (e.g., Trudgill 1983). Another line of linguistic thought goes back to the later 19th century when scholars such as William Dwight Whitney (1827-1894), Heymann Steinthal (1823-1899), Michel Bréal (1832-1915), Hermann Paul (1846-1921), Jan Baudouin de Courtenay (1846-1929), and others reacted against the view, usually associated with the work of August Schleicher (1821-1868), that linguistics could be thought of as a natural science. However, this change in the philosophical outlook among linguists became fairly general in the wake of the publication of Wilhelm Dilthey's (1833-1911) *Einleitung in die Geisteswissenschaften* of 1883 and the ensuing debate over the essential differences between *Naturwissenschaft* and *Geisteswissenschaft* in Germany and elsewhere (cf. Koerner 1982:187-188). This reference to the change in the intellectual climate is important as it provides the background for a better understanding of a specific line of research. So in addition to dialectology, we may also recognize a particular line of approach to historical linguistics that has been sociological in orientation, and finally, we may become aware of the more recent influx of work on bi- and multilingualism into sociolinguistic research.

The influence of Whitney, Paul, Baudouin de Courtenay, and others on Saussure is well established (see Koerner 1973 for details), suggesting at the same time that the latter did not need Durkheim to be able to describe language as a 'fait social' (*pace* Bierbach 1978). To cite just one passage from

¹ This section is to include also a paper by Michael Clyne on the history of language contact and another by Ian Hancock on research on Pidgins and Creoles, thus effectively enlarging the scope of 'sociolinguistics' beyond what is meant by the term in the present paper.

Whitney's *Language and the Study of Language* that Saussure frequently referred to in his lectures on general linguistics:

Speech is not a personal possession, but a social; it belongs, not to the individual, but to the member of society. No item of existing language is the work of an individual; for what we may severally choose to say is not language until it be accepted and employed by our fellows. The whole development of speech, though initiated by the acts of individuals, is wrought out by the community. (Whitney 1867:404)

I shall return to the importance of Whitney in section 1.2 (below). The role he played in European linguistics during the last quarter of the 19th century has been discussed already (see Koerner 1980).

1.1 *From dialect geography to sociolinguistics*

As mentioned, Malkiel (1976) drew the connection between dialectological work in Romance languages and sociolinguistics. We must go back to the beginnings of fieldwork in dialect geography during the last decades of the 19th century to see the sociological component slowly infiltrating linguistic topology. I am thinking in particular of the *Marburger Schule* established by Georg Wenker (1852-1911), which is still active today (cf. Knoop et al. 1982) and the school created by the Swiss Jules Gilliéron (1854-1926) in Paris (cf. Jaberg 1908), whose students Jacob Jud (1882-1952) and Karl Jaberg (1877-1958), together with the assistance of Paul Scheuermeier (1888-1973), Gerhard Rohlfs (1892-1984), and Max Leopold Wagner (1880-1962), compiled the voluminous *Atlas linguistique et ethnographique de l'Italie et de la Suisse méridionale* (Jaberg & Jud 1928-40). Both the German and the Swiss connection are of interest in the present context as I shall outline below.

To begin with, Max Weinreich (1894-1969), the father of the much better known Uriel Weinreich (1926-1967), did his doctoral dissertation on Yiddish with Ferdinand Wrede (1863-1934), Wenker's successor at the University of Marburg (Weinreich 1923). Wrede (whom Meillet cites in his 1905 paper [see Meillet 1921:255]) in a 1902 article drew parallels between ethnography and dialectology, distinguishing between 'individuelllinguistische' and 'sozial-linguistische' instances in borrowing among languages. (From 1926 onwards, Wrede edited the *Deutscher Sprachatlas*, initiated much earlier by Wenker.) Perhaps more important in the present context is the fact that, in 1931, Jud and Scheuermeier were brought over to this continent for the summer to train American students to undertake dialectological field work. The Austrian-born Hans Kurath (b.1891) had secured a grant from the American Council of Learned Societies for this purpose. We know that Raven I. McDavid (1911-1984) for instance was one of those who participated in the research that led to the *Linguistic Atlas of New England* edited by Kurath and others (1939-1943). It seems significant therefore that McDavid published an article entitled "Dialect Geography and Social Problems" as early as 1946 (cf. also McDavid's autobiographical sketch of 1980). By the time McDavid and O'Cain published their 1973 paper, the connection between dialectology and sociolinguistics had been widely accepted.

Even outside established schools important dialectological work was done in the later 19th century; mention can be made of Schleicher's little known study of his native dialect (Schleicher 1858) and of Jost Winteler's (1846-1929) celebrated *Kerenzer Mundart* of 1875 as just two such examples. That the social component

in language variation was recognized before the turn of the century may be gathered from the dialect work of yet another scholar of the time, Philipp Wegener (1848-1916), who noted the following in his 1891 contribution to Hermann Paul's *Grundriss*:

In the Magdeburg region the rural workers go into the cities in large numbers to work there as masons, handy-men or in the factories. The joint work brings them into regular contact with the urban workers; the Low German rural worker usually does not mind being influenced by the common speech of the city dwellers, and this the more so, the larger the distance from his rural dialect and the higher his esteem for the advantages of urban life. (Wegener 1891:937; my translation: KK)

I resist the temptation to give this statement a modern interpretation. I believe, however, that in observations like these we may discern an awareness of the 'sociology of language' *avant la lettre*, and I am sure that many other such statements could be found in the early work of dialectologists. (Cf. also Olmsted & Timm 1983 on Baudouin de Courtenay, who, a former student of Schleicher's, conducted considerable field work from the 1870s onwards.) No doubt the actual contact in these linguistic investigations with speakers of different varieties of language in differing socio-economic settings fostered such awareness, to the extent that it becomes at times difficult to distinguish sharply between dialectology and sociolinguistics in their work, especially in areas of research that are now called 'urban dialectology'.

To perhaps establish a more obvious connection between the different lines of development in the history of sociolinguistics, let me draw something like a genealogy. Before we are able to do so, however, a few additional links will have to be established. We mentioned Saussure's high esteem for Whitney which probably goes back to his years at the University of Leipzig (1876-1880). During his years in Paris, Saussure's most distinguished student was Antoine Meillet (1866-1936), who in turn had André Martinet (b.1908) as his student. I mention this fact because Martinet wrote a monograph-length study of his native dialect in 1939, which was published after World War II (Martinet 1946). More important still, while a professor at Columbia University in New York City, Martinet had Uriel Weinreich as his student, both for the M.A. and the Ph.D. It was Weinreich's doctoral thesis of 1951 which led to the book he became famous for, namely, *Languages in Contact* (Weinreich 1954), a socio-geographical study of bilingualism whose title he took from a series of lectures given by Martinet (as Weinreich indicated in his Acknowledgements, p.x). It should be added that Weinreich studied under Jakob Jud in Zürich during the academic year 1948-49 (cf. Malkiel 1969), doing fieldwork in Switzerland. Finally, we need only recall the fact that William Labov (b.1927) took his Master's and doctoral degrees with Weinreich (see Labov 1963, 1966) in order to establish the line leading from Whitney to Labov and to contemporary sociolinguistics:

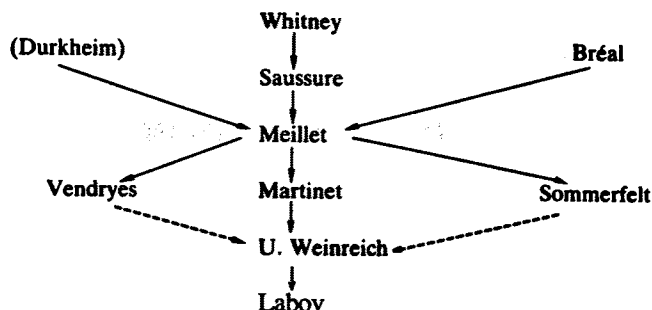


Fig.1: From Whitney to Labov

No doubt this is an overly simplistic 'genealogical tree' and much more would have to be supplied in order to offer an adequate picture. The next section adds to its complexity. But those familiar with Labov's work know of his frequent acknowledgement of debt to his teacher and of his references to Meillet, Saussure, Hermann Paul, and others to make this genealogy somewhat more credible.

The transition from dialectological work to sociolinguistic research is something like a natural development as can be shown by reference to work done on Dutch during the first decades of this century. Although noting that 'the sociological approach had scarcely found its way into linguistics', Jacobus van Ginneken (1877-1945) attempted to bring about just that in his 2-volume *Handboek der Nederlandse taal* (Van Ginneken 1913-14) as he indicated in the subtitle: 'De sociologische structuur van het Nederlands' (cf. Hagen 1988:271-272, for details). The next decade saw the publication of a work which Hagen (p.273) rightly characterizes as "a very advanced sociolinguistic study", i.e., Gesinus Gerardus Kloeke's (1877-1963) *De Hollandsche expansie* of 1927, which Bloomfield treated as paradigmatic for the discussion of isoglosses in his chapter on dialectology (Bloomfield 1933:328-331). As the full title of his book indicates (see References), Kloeke is combining in his research language geography, sociology, and history; sound change is regarded as taking place by a process of social adaptation or borrowing from the speech of the upper classes by speakers from the socio-economically lower classes.

1.2 Historical Linguistics, Language Change, and Sociolinguistics

While the dialectology-sociolinguistics connection is rather obvious, the link that exists between certain traditions in historical linguistic work and sociolinguistics is not. And yet we can find it acknowledged in the work of Labov, for instance in his *Sociolinguistic Patterns* of 1972. There Labov (p.267) states:

In 1905, Meillet predicted that this century would be devoted to isolating the causes of language change within a social matrix in which language is embedded. But that did not happen. In fact, there were almost no empirical studies of language change in its social context in the 50 years following Meillet's pronouncement.

Labov is referring to the famous paper by Antoine Meillet, "Comment les mots changent de sens", which Meillet published in volume 9 of Emile Durkheim's

(1858-1917) periodical *Année sociologique*, and which still today is regarded as exemplary in the semantic change debate (cf. Arlotto 1972:163-183 *passim*; Lehmann 1973:212-213). One may assume that Labov (cf. *ibid.*, p.23) would have taken the by now classical studies by Louis Gauchat (1866-1942) of 1905 and by Eduard Hermann (1869-1950) of 1929 as exceptions to his pronouncement (cf. Lehmann 1973:163-164); however, one misses a reference to the work of Kloeke for instance in his 1972 book. (Curiously enough, Kloeke's name does not appear in Weinreich's huge bibliography [1953:123-146] either.) Earlier in his book Labov (p.263) quoted, with approval, the following passage from Joseph Vendryes' *Le Langage: Introduction linguistique à l'histoire* (completed in 1914 but only published in 1921):

Language is [...] the social fact par excellence, the result of social contact. It has become one of the strongest bonds uniting societies, and it owes its development to the existence of the social group. (Vendryes 1925[1921]:11)

Vendryes (1875-1960), first a pupil and later a long-time collaborator of Meillet's, fully shared his teacher's views on the social nature of language and on the desirability of establishing a sociological linguistics. His goal, like Meillet's and his school (cf. Bolelli 1979), was to pinpoint the causes of linguistic change and not simply describe its mechanism as was common practice among historical linguists, Neogrammarian or not, of the 19th and early 20th century. While Meillet did not venture beyond the area of lexical change (which in many instances offers itself best to sociological interpretation as regards the reasons for meaning change in words), Vendryes, as the title of his book suggests, although he devotes two chapters to meaning change alone (Vendryes 1925:192-211 and 212-230), tried to argue that linguistic evolution is but a reflection of social evolution (pp.352ff.).

However, while other students of Meillet's, such as Alf Sommerfelt (1892-1965) from the 1930s onwards (e.g., Sommerfelt 1932) and Marcel Cohen (1884-1974) in his later years (e.g., Cohen 1956), belaboured the subject of a sociology of language, it is fair to say that little concrete advance was made in the explanation of language change on the basis of social factors (cf. Labov's [1972:267] remarks). However, Meillet's student André Martinet did instill in his student Uriel Weinreich a strong interest in historical linguistics and the explanation of the causes of linguistic change, an interest he passed on to his student, William Labov (cf. Weinreich et al. 1968), as may be gathered from most of his research from the mid-1960s onwards (e.g., Labov 1982 for a recent monograph-length study). In fact, Labov's work constitutes a synthesis of earlier attempts at a sociological approach to questions of language change, beginning with Meillet's paper of 1905 (if not much earlier) and dialectological research done in the United States since the 1930s, which in turn goes back to European traditions established during the last quarter of the 19th century. Even Whitney, who made such seemingly modern-sounding observations as the following, was European-trained:

We regard every language, [...], as an institution, one of those which, in each community, make up its culture. Like all the constituent elements of culture, it is various in every community, even in the different individuals composing each. (Whitney 1875:280)

1.3 *Bilingualism, Multilingualism, and Languages in Contact*

There is yet a third line traceable in more recent work (ignoring the late 19th-century debate on 'Mischsprachen' and the like) that filtered into much modern-day work in sociolinguistics. I am not referring to straightforward research of bilingualism as Werner F. Leopold (1896-1984) did in the 1930s and 1940s (Leopold 1939-1950), which is more associated with 'psycholinguistics', but to bilingualism research that is conscious of the socio-political environment in which it occurs. I am thinking in particular of the work of Einar Haugen (b.1906) from the early 1950s onwards, especially his ground-breaking study of the Norwegian language in the United States (Haugen 1953). In this context, it is interesting to note that Weinreich *père*, like his son a native speaker of Yiddish, published papers on bilingualism as early as in 1931. It is easy to imagine that following the arrival of the Weinreichs on the North American continent, and given the multilingual situations that they must have observed in New York City, that their interest in plurilingualism and language contact would have increased. (In this regard Martinet's influence on Uriel Weinreich must have been of singular importance.)

In other words, the sources of modern-day sociolinguistics are diverse and complex, and they all had a bearing on the development of the various research programs from the 1960s onwards. In the North American context, where over 10% of the population is of African ancestry, we should not forget the importance that was attached by the Kennedy and Johnson administrations to the study of 'Black English' (cf. Drake 1977:78-106, for details), research in which Labov was very prominent (cf. Labov 1966).

2.0 *Concluding Observations*

Writing at the beginning of the century under the influence of Durkheimian sociology, Meillet did not have a name for the new approach to language and language change in particular. But just a few years later, in 1909, his compatriot Raoul de la Grasserie (1839-1914) spoke of 'sociologie linguistique' in a programmatic article. The term 'sociolinguistics', however, did not make its appearance before 1952, somewhat too late to be employed in Haugen's and Weinreich's studies of 1953. Created by Haver C. Currie (b.1908) and used in a programmatic paper dealing with what we would refer to as '(social) registre' of speech, the term 'sociolinguistics' was picked up by Ethel Wallis in 1956, the same year that Glenna Pickford offered a 'sociological appraisal' of American dialectology. It appears, however, that it took almost ten more years before 'sociolinguistics' became the accepted name for an important subfield of linguistic research (e.g., Bright 1966). We might depict the evolution of modern sociolinguistics with the help of the following diagram (which is obviously incomplete):

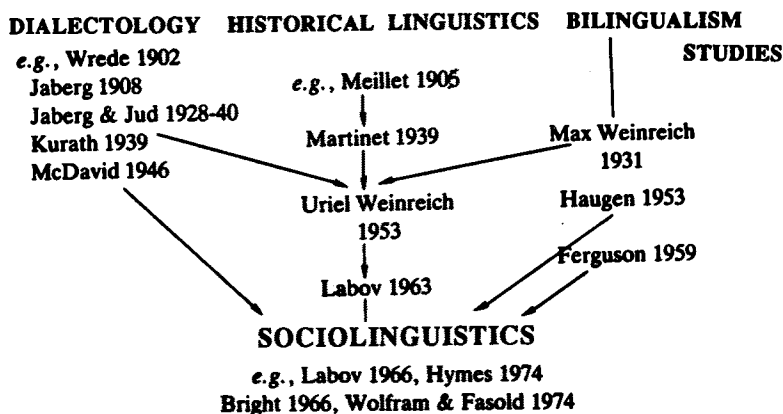


Fig. 2: The sources of sociolinguistics

It is true that the appearance of a term does not mark the beginning of a discipline but marks the point at which professional identification of a particular enterprise is regarded as desirable. If the awakening of interest in the history of 'sociolinguistics' is any indication, it appears that the field is reaching its maturity.

REFERENCES*

- Ammon, Ulrich, Norbert Dittmar & Klaus J. Mattheier, eds. 1988. *Sociolinguistics / Soziolinguistik: An international handbook of the science of language and society*. 2 vols. Berlin & New York: Walter de Gruyter.
- Arlotto, Anthony. 1972. *Introduction to Historical Linguistics*. Boston: Houghton-Mifflin. (New printing, Lanham, Md.: Univ. Press of America, 1981.)
- Bernstein, Basil B(ernard). 1965. "A Sociolinguistic Approach to Social Learning". *Penguin Survey of the Social Sciences* ed. by Julius Gould, 144-168. Harmondsworth, Middlesex & Baltimore: Penguin Books.
- , 1971. *Class, Codes, and Control*. 3 vols. London: Routledge & Kegan Paul. (2nd ed., 1974-75.)
- Bierbach, Christine. 1978. *Sprache als "Fait social": Die linguistische Theorie F. de Saussures und ihr Verhältnis zu den positivistischen Sozialwissenschaften*. Tübingen: M. Niemeyer.
- Bloomfield, Leonard. 1933. *Language*. New York: Holt, Rinehart & Winston.
- Boilelli, Tristano. 1979. "La scuola linguistica sociologica francese". *Studi e Saggi Linguistici* (Pisa) 19.1-26.
- Bright, William, ed. 1966. *Sociolinguistics: Proceedings of the UCLA Conference*. The Hague: Mouton.
- Currie, Haver C. 1952. "A Projection of Sociolinguistics: The relationship of speech to social status". *Southern Speech Journal* 18.28-37.
- , 1981. "Sociolinguistics and American Linguistic Theory". *International Journal of the Sociology of Language* 31.29-41.
- Dittmar, Norbert. 1976. *Sociolinguistics: A critical survey and application*. Transl. from the German by Peter Sand [et al.]. London: E. Arnold.

* Note that the bibliography includes several items not actually referred to in the present paper; however, they are of relevance in the history of 'sociolinguistics' (cf. also Koerner 1986).

- Drake, Glendon F. 1977. *The Role of Prescriptivism in American Linguistics, 1820-1970*. Amsterdam: J. Benjamins.
- Ferguson, Charles A(lbert). 1959. "Diglossia". *Word* 15.325-340. (Repr. in *Language in Culture and Society* ed. by Dell Hymes, 429-439. New York: Harper & Row, 1964.)
- Fishman, Joshua A(aron). 1972. *Language in Sociocultural Change: Essays*. Selected & introd. by Anwar S. Dil. Stanford, Calif.: Stanford Univ. Press.
- Gauchat, Louis. 1905. "L'unité phonétique dans le patois d'une commune". *Aus romanischen Sprachen und Literaturen: Festschrift für Heinrich Morf* [...], 175-232. Halle/S.: M. Niemeyer.
- Gumperz, John J. 1971. *Language in Social Groups: Essays*. Selected & introd. by Anwar S. Dil. Stanford, Calif.: Stanford Univ. Press.
- Hagen, Anton M. 1988. "Dutch Dialectology: The national and the international perspective". *Historiographia Linguistica* 15.263-287.
- Haugen, Einar. 1953. *The Norwegian Language in America: A study in bilingual behavior*. 2 vols. Philadelphia: Univ. of Pennsylvania Press. (2nd ed., Bloomington: Indiana Univ. Press, 1969.)
- Hermann, Eduard. 1929. "Lautveränderungen in der Individualsprache einer Mundart". *Nachrichten der Gesellschaft der Wissenschaften zu Göttingen*; Phil.-hist. Klasse 9.195-214.
- Hymes, Dell. 1974. *Foundations in Sociolinguistics: An ethnographic approach*. Philadelphia: Univ. of Pennsylvania Press.
- , 1983. *Essays in the History of Linguistic Anthropology*. Amsterdam & Philadelphia: J. Benjamins.
- & John Fought. 1975. "American Structuralism". *Current Trends in Linguistics* ed. by Thomas A. Sebeok, vol. XIII: *Historiography of Linguistics*, 903-1176. The Hague: Mouton. (Separate publication, *ibid.*, 1981.)
- Jaberg, Karl. 1908. *Spracheographie: Beitrag zum Verständnis des Atlas linguistique de la France*. Aarau: H. R. Sauerländer.
- & Jakob Jud, eds. 1928-40. *Sprach- und Sachatlas Italiens und der Südschweiz*. [...] die Mundartaufnahmen wurden durchgeführt von P[aul] Scheuermeier, G[erhard] Rohlfs und M[ax] L[eopold] Wagner. 8 vols. Zofingen: Ringer. [The introduction, *Der Sprachatlas als Forschungs-instrument: Kritische Grundlegung und Einführung in den Sprach- und Sachatlas* ..., was published separately, Halle/S: M. Niemeyer, 1928.]
- Katz, Dovid. 1982. "Zur Dialektologie des Jiddischen". (Transl. from the English by Manfred Görlach). *Dialektologie: Ein Handbuch zur deutschen und allgemeinen Dialektologie* ed. by Werner Besch et al., 1018-1041. Berlin & New York: W. de Gruyter.
- Kloeke, G(esinus) G(erardus). 1927. *De Hollandsche expansie in de zestiende en zeventiende eeuw en haar weerspiegeling in de hedendaagsche Nederlandsche dialecten*. The Hague: M. Nijhoff.
- Knoop, Ulrich, Wolfgang Putschke & Herbert Ernst Wiegand. 1982. "Die Marburger Schule: Entstehung und frühe Entwicklung der Dialektgeographie". *Dialektologie: Ein Handbuch zur deutschen und allgemeinen Dialektologie* ed. by Werner Besch et al., 38-92. Berlin & New York: W. de Gruyter. [Bibliography, 80-92.]
- Koerner, E. F. Konrad. 1973. *Ferdinand de Saussure: Origin and development of his linguistic theory in western studies of language*. Braunschweig: F. Vieweg. (Spanish transl., Madrid: Gredos, 1982; Hungarian transl., Budapest: Tankönyvkiadó, 1982; Japanese transl., Tokyo: Taishukan, 1982.)
- , 1978. *Toward a Historiography of Linguistics*. Foreword by Robert H. Robins. Amsterdam: J. Benjamins.
- , 1980. "L'importance de William Dwight Whitney pour les jeunes linguistes de Leipzig et pour Ferdinand de Saussure". *Lingvisticae Investigationes* 4.379-394. (Repr. in Koerner 1988.1-16.)
- , 1982. "Positivism in 19th-Century Linguistics". *Rivista di Filosofia* 73.170-191.
- , 1984. "French Influences on Saussure". *Canadian Journal of Linguistics/Revue canadienne de Linguistique* 29.20-41. (Repr. in Koerner 1988.67-88.)
- , 1986. "Aux sources de la sociolinguistique [moderne]". *Lingvisticae Investigationes* 10.381-401. (Repr. in Koerner 1988.155-174.)

- , 1988. *Saussurean Studies / Études saussuriennes*. Geneva: Éditions Slatkine.
- Kuhn, Thomas S(amuël). 1969. "Comment [concerning the relationship between science and history]". *Comparative Studies in Sociology and History* 11.403-412.
- Kurath, Hans (with the collaboration de Marcus L. Hansen, Julia Bloch & Bernard Bloch). 1939. *Handbook of the Linguistic Geography of New England*. Providence, R.I.: American Council of Learned Societies.
- Labov, William. 1963. "The Social Motivation of Language Change". *Word* 19.273-309.
- , 1966. *The Social Stratification of English in New York City*. Washington, D.C.: Center for Applied Linguistics.
- , 1972. *Sociolinguistic Patterns*. Philadelphia: Univ. of Pennsylvania Press.
- , 1982. "Building on Empirical Foundations". *Perspectives on Historical Linguistics* ed. by Winfred P. Lehmann & Yakov Malkiel, 17-92. Amsterdam & Philadelphia: J. Benjamins.
- La Grasserie, Raoul de. 1909. "De la sociologie linguistique". *Monatsschrift für Soziologie* 1.725-745.
- Lehmann, Winfred P. 1972. *Historical Linguistics: An introduction*. 2nd rev. ed. New York: Holt, Rinehart & Winston.
- Leopold, Werner F. 1939-50. *Speech Development of a Bilingual Child*. 4 vols. Evanston, Ill.: Northwestern Univ.
- Malkiel, Yakov. 1969. "Uriel Weinreich, Jakob Jud's last student". *Romance Philology* 22.128-132.
- , 1976. "From Romance Philology through Dialect Geography to Sociolinguistics". *International Journal of the Sociology of Language* 9.59-84.
- Martinet, André. 1946[1939]. "Description du parler franco-provençal d'Hauteville (Savoie)". *Revue linguistique romane* 15.1-86.
- McDavid, Raven I(oor), Jr. 1946. "Dialect Geography and Social Science Problems". *Social Forces* 25.168-172.
- , 1980. "Linguistics, through the Kitchen Door". *First Person Singular* ed. by Boyd H. Davis & Raymond K. O'Cain, 3-20. Amsterdam: J. Benjamins.
- & Raymond K(enneth) O'Cain. 1973. "Sociolinguistics and Dialect Geography". *Kansas Journal of Sociology* 9.137-156.
- Meillet, Antoine. 1905. "Comment les mots changent de sens". *Année sociologique* 9.1-38. (Repr. in A. Meillet, *Linguistique historique et linguistique générale*, [vol.I], 230-271. Paris: H. Champion, 1921.)
- Olmsted, David L. & Lenora A. Timm. 1983. "Baudouin de Courtenay as Sociologist". *Essays in Honor of Charles F. Hockett* ed. by Frederick B. Agard et al., 430-443. Leiden: E.J. Brill.
- Pickford, Glenna Ruth. 1956. "American Linguistic Geography: A sociological appraisal". *Word* 12.211-233.
- Pop, Sever. 1950. *La Dialectologie: Aperçu historique des méthodes d'enquêtes linguistiques*. 2 vols. Louvain: chez l'auteur. (Printed, Gembloux: J. Duculot.)
- Schleicher, August. 1858. *Volkstümliches aus Sonneberg im Meininger Oberlande*. Weimar: H. Böhlau.
- Sommerfelt, Alf. 1962[1932]. "La linguistique: science sociologique". *Diachronic and Synchronic Aspects of Language: Selected articles* by A. Sommerfelt, 36-51. The Hague: Mouton.
- Trudgill, Peter. 1974. *The Social Differentiation of English in Norwich*. Cambridge: Cambridge Univ. Press.
- , 1983. *On Dialect: Social and geographical perspectives*. New York: New York Univ. Press.
- Van Ginneken, Jac[obus Joannes Antonius]. 1913-14. *Handboek der Nederlandse taal: De sociologische structuur van het Nederlands*. 2 vols. s'Hertogenbosch: Malmberg.
- Vendryes, Joseph. 1925[1921]. *Language: A linguistic introduction to history*. Transl. from the French by Paul Radin. London: Routledge & Kegan Paul. (5th impression, 1959.)
- Wallis, Ethel. 1956. "Sociolinguistics in Relation to Mezquital Otomi Transition Education". *Estudios antropológicos en homenaje al doctor Manuel Gamco*, 523-535. México, D.F.: Sociedad Mexicana de Antropología.
- Wardhaugh, Ronald. 1986. *An Introduction to Sociolinguistics*. Oxford: Basil Blackwell.

- Wegener, Philipp. 1891. "Die Bearbeitung der lebenden Mundarten". *Grundriss der germanischen Philologie* ed. by Hermann Paul, vol.I, 931-944. Strassburg: K. J. Trübner.
- Weinreich, Max. 1923. *Shtaplen: Fir etydn tsu der yidisher shprakh-visnshaft un literatur-geshikhte*. Berlin: no pub.
- , 1931a. "Di problem fun tzveyshprakhikayt". *Yivo-Bleter* 1.114-129.
- , 1931b. "Tsveyshprakhikayt: Mutersprakh un tsveyte shprakh". *Ibid.* 301-316.
- Weinreich, Uriel. 1953. *Languages in Contact: Problems and findings*. Preface by André Martinet. New York: Linguistic Circle of New York. (2nd ed., The Hague: Mouton, 1963; 8th printing, 1974.)
- , William Labov & Marvin I. Herzog. 1968. "Empirical Foundations for a Theory of Language Change". *Directions for Historical Linguistics* ed. by Winfred P. Lehmann & Yakov Malkiel, 97-195. Austin, Tex.: Univ. of Texas Press.
- Whitney, William Dwight. 1867. *Language and the Study of Language*. New York: Scribner, Armstrong & Co. (6th ed., 1901.)
- , 1875. *Life and Growth of Language: An outline of linguistic science*. New York: D. Appleton & Co.; London: H. S. King. (Repr., with a new introduction by Charles F. Hockett, New York: Dover Publications, 1979.)
- Winteler, Jost. 1875. *Die Kerenzer Mundart des Kantons Glarus in ihren Grundzügen dargestellt*. Leipzig & Heidelberg: F. C. Winter. [With a 1876 imprint.]
- Wolfram, Walt & Ralph W. Fasold. 1972. *The Study of Social Dialects in American English*. Englewood Cliffs, N.J.: Prentice-Hall.
- Wrede, Ferdinand. 1902. "Ethnographie und Dialektwissenschaft". *Historische Zeitschrift* 88 (= n.s. 52).22-43. (Repr. dans F. Wrede, *Kleine Schriften* ed. by Luise Berthold et al., 294-308. Marburg: Elwert, 1963.)
- , ed. 1926ff. *Deutscher Sprachatlas auf Grund des von Georg Wenker begründeten Sprachatlas des Deutschen Reiches ...*. Marburg: N. G. Elwert.

VIII

HISTORICAL LINGUISTICS

LANGUAGE CHANGE AND BARNETT'S THEORY OF INNOVATION
AND CULTURAL CHANGE: A FURTHER DELINEATION

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Previously reported research has shown that language change is correctly explained by Barnett's theory of innovation and cultural change because it occurs exactly as the theory says it should and would (Collins, 1987) because innovation is a very common, universal, human activity whether or not it results in lasting change. Barnett clearly demonstrates in his writings that it also occurs in all areas of culture as a result of the operation of two separate, subconscious acts involving cognition: 1) the creation of an innovation itself by an individual, and 2) the acceptance of the innovation by societal members with subsequent "gain or loss" to the cultural inventory. Acceptance or rejection of an innovation is determined by cultural factors such as social rank/status and the personality of the innovator as advocate or of another advocate, or through the power of sociocultural institutions, e.g., the political, educational, religious, and legal subsystems. The acceptance phase of the innovation process is the stage which results in discernible cultural change (Collins, 1987). Since what Barnett says about cultural change applies to all elements of culture, then, as language is subsumed into culture, it is affected just as is any other material or non-material, cultural artefact or subsystem. The 1987 research shows that change in language occurs exactly as it does in the other aspects of culture. The same cognitive processes are used by all innovators regardless of the cultural medium (cf. Appendix A for a brief recapitulation of Barnett's theory).

Several questions arose during the previous research which were not addressed then but which need to be examined. This paper is concerned with these questions:

Q1) Does innovation in language encompass the same variables found in innovation involving the other aspects of culture?

Q2) Although innovation in culture can occur deliberately with various innovations consciously developed, is this true for language? This is not to imply that the cognitive processes involved in innovation are consciously manipulated; these process always operate subconsciously.

Q3) Although the prototype configuration in cultural innovation can originate anywhere in the cultural domain, is this true for innovation in language as well, e.g., is the prototype configuration restricted to the domain of language or can it be from any cultural referent?

Q4) Is there a preferred pattern for innovation in language, e.g., do the six basic innovation patterns occur or only some of

the six, and is one pattern preferred over the others?

Three hypotheses were tested in the search for the answers to these questions.

H1) "Language innovation differs from innovation occurring in other areas of culture in that all wants or needs experienced by speakers are restricted to the desire to eliminate ambiguity and uncertainty in the message contained in the utterance and not to a desire to create something new." The wants and needs experienced by the speaker are not given overt expression. The speaker does not say to himself, "Something's wrong; I want to invent something to make saying this easier". Instead, he stops the utterance, fumbles around for words or proper order, even starting over several times, all the while searching for a way to make clearer what he's trying to say. He rephrases the utterance but with no conscious knowledge of what he did specifically or even why. The reworking may result in an innovation, or it may simply be style variation involving word choice or word order, both of which are permissible linguistic actions. Hypothesis 1 is accepted.

H2) "Language change is involuntary and subconsciously brought about with two exceptions: style variation and the creation of kenning and metaphor." Analysis shows that all innovation occurring in the syntactic, morphophonological, and semantic systems of language does not happen by a deliberate, conscious act, but it is the result of subconscious cognitive behavior. No one sets out to change his language deliberately in the way an inventor does in order to create a tangible something he needs or wants. Language is not the same as other systems of culture in that it is a tool used to interact with other individuals but which is not consciously thought about or even considered while a person is speaking. The concentration of the hearer as well as the speaker is on the message the tool is conveying, not on the tool itself. In the cultural domain the inventor recognizes there is a need or want to be satisfied and what it is specifically. He sets out to remedy this situation by developing an innovation, and he uses exactly the same cognitive processes he would use in making an innovation in language; here, too, they operate subconsciously. However, innovation that occurs in language does not follow the organization it does in cultural innovation. The speaker who has at most only a vaguely defined perception that something seems wrong--the "it doesn't sound right" syndrome--in mid-utterance tinkers with what he's saying, trying to make it sound better. There is no evidence to suggest that linguistic innovation is any more than a rapid subconscious mental activity where the end result, the innovation, is blurted out without the innovator realizing he has created an innovation. Sometimes what appears to be language innovation and language change is something else again. A person may deliberately and consciously change his language usage habits for reasons that have nothing to do with language or innovation in language but which are concerned with social reasons and social factors, i.e., the recent attempts to eliminate the use of sexist language or

the deliberate adoption of a pronunciation pattern to distinguish the insider from the outsider (Labov, 1963). Phenomena like these are not linguistically determined but socially determined, nor are linguistic innovations involved.

The use of the word 'involuntary' in the original hypothesis for this paper is incorrect. The cognitive processes used in language innovation occur subconsciously, but not involuntarily. Innovation is not the result of a mental tic. Furthermore, there is no deliberate, conscious manipulation of the cognitive processes associated with innovation involving syntax, morphophonology, and semantics--only rapid subconscious thought.

The expression of a subject in impersonal sentences by the so-called impersonal verbs in Old English is a case in point. This class of verbs consists of three subclasses: 1) impersonal verbs, more properly named 'experiencer' verbs as the individual verb meanings always involve a person's mental state or ability (to feel, to doubt, to happen to, to be joyful, to hurt, to prosper, something a person experiences, 2) weather and time verbs, and 3) some experiencer uses with BE. These verbs do not have an expressed subject nominal, the inherited pattern. The only expressed referent to a subject is carried by the verb inflection for the 3rd person singular indicative. The meanings indicated by these verbs do not permit a nominal carrying the agentive role be in them at all as subject or object. Furthermore, the agentive nominal is not just missing on the surface: it cannot be recovered as it is not there to recover. Of the two nominals permitted in sentences with these verbs, one is a human experiencer nominal carrying an objective inflection. This nominal can carry any one of the oblique inflections, but never a nominative one (cf. Collins, 1980 and 1985 for a discussion of why this is so). There can have been no conscious, deliberate effort to give these sentences a subject for grammatical reasons. The "need or want" to be fulfilled could only have been to bring a sentence lacking a subject into conformity with the majority of other Old English sentences, thereby eliminating exceptions. In current linguistic thought the impersonal sentence is often said to have an empty subject nominal slot, but no nominal to fill that slot because one is not needed semantically. This is an improper and inaccurate analysis of the situation for Old English. This experiencer class of verbs can take a nominal in the subject position as long as its semantic role is causative, but not if the role is experiencer or agentive.

- 1) aeghwylc man [causative/subject] þurh gode daeda Gode
 [experiencer/object] licien sceal Blickling Homilies
 (R.Morris) 129, 34
 [each man shall please God through good deeds]

Multiple sentences exist in Old English which have no expressed subjects but which are available in a speaker's past language experiences for call up by a stimulus situation from the

speaker's past language experiences to form a prototype configuration, e.g., imperatives, and the second and third units of a three-unit sequence of sentences in which all have the same semantic subject with the subject expressed in the first unit but not in the subsequent two units. Imperatives also occur with a subject when the personal pronoun þu 'you' is used to indicate emphasis, just as the subject position in second, third, or both units in a sequence of coordinate sentences can optionally express the appropriate personal pronoun as subject. For the innovator to call up a prototype configuration containing the personal pronoun hit 'it' is not surprising. Hit represents nouns in the neuter gender. Its meaning often seems vague or relatively meaningless. The innovator doesn't consciously know this. He just knows that the experiencer sentence sounds wrong and differs from most other sentences he speaks or hears. However, the innovator equates this prototype configuration with the problem of other sentences that lack a subject nominal. He cognitively and subconsciously rearranges the elements of the two configurations (the prototype configuration and the stimulus configuration) and develops an innovation. This innovation by its creation eliminates exceptions to a vaguely perceived rule.

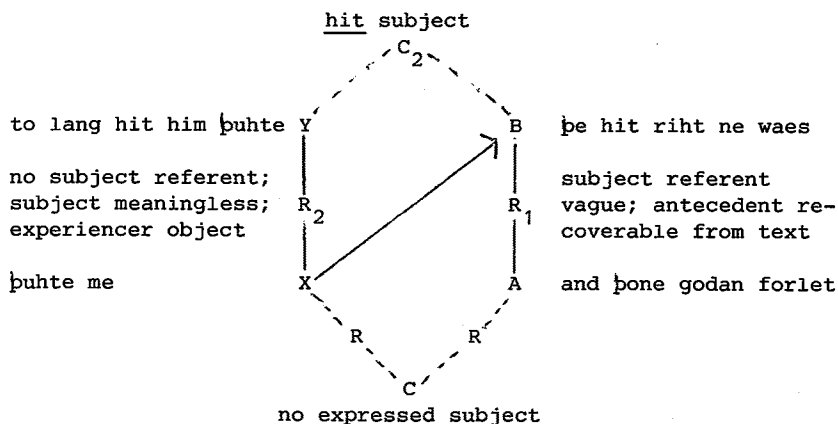


Figure 1: Innovation I

Innovation pattern: XR₁B

Stimulus sentence, Component X (cf. above model):

- 2) þuhte me [indirect object/experiencer role] þaet ic gesawe
 sillicre treow Dream of the Rood 4
 [seemed to me that I saw a wondrous tree]

Prototype sentence, Component A (cf. above model):

- 3) þaer wurdon Oddan bearn [subject] aereost on fleame, Godric,
 fram guþe, and þone godan forlet [no subject] þe him
 maenigne of near geseald Battle of Maldon 186-189

[there Odda's son, Godric, was first in flight from battle,
and abandoned the good who often gave him many a horse]

Prototype sentence, Component B (cf. above model):

- 4) he gehleop þone eoh þe ahte his hlaford on þam geraedum
þe hit [subject] riht ne waes Battle of Maldon 189-190
[he leapt on the horse which his lord owned, on the trap-
pings, which it was not right (for him to do)]

Innovation sentence, Component Y (cf. above model):

- 5) to lang hit [subject] him þuhte hwaenne hi togaedere garas
beron Battle of Maldon 66-67
[it seemed too long to him since they bore spears
(fought) together]

In order to derive sentence 4) above (the one which reveals that Innovation I had occurred earlier), the innovator had to subconsciously rearrange the elements of the stimulus and prototype configurations cognitively by assimilation into the innovation configuration XR_1B , thereby creating something new. The recall of hit in the prototype configuration provides a nominal which has little meaning coupled with a rather vague antecedent implied in the situational context but not in any nominal (see examples 2 and 3). In these hit does not carry either the causative or agentive role. Also, the shift from a condition of a vague situational antecedent to one of no antecedent either in the discourse or in reality is no great leap. The choice of hit was inescapable as no other personal pronoun could meet these conditions. This innovation thereby eliminates exceptions to a faintly understood rule requiring an expressed subject nominal, yet it maintains verb integrity regarding permissible semantic roles.

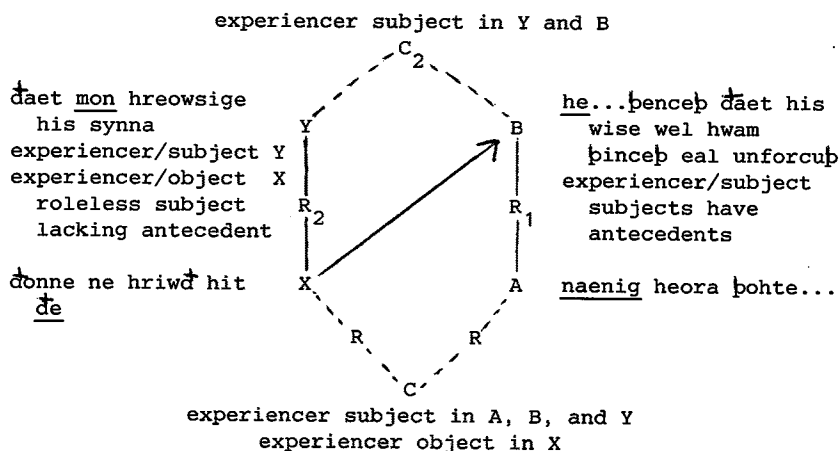


Figure 2: Innovation II

The second innovation in this sequence permits other personal pronouns and nouns, all of which carry the experiencer semantic role, to be used as subjects with these verbs. These personal nominals have antecedents in the text and in reality, both of which can be pointed out.

Innovation pattern for Figure 2 above: XR₁B.

Stimulus sentence, Component X (cf. above model):

- 6) ne doo du nanwuht buton ged⁺eahte, donne ne hriw⁺d hit [role-less/subject] de [experiencer/object] donne hit [antecedent 'nanwuht'] gedon bið Gregory Pastoral Care 287, 11
[do you naught without counsel, then it grieves you not when it is accomplished]

Prototype sentence, Component A (cf. above model):

- 7) naenig [experiencer/subject] heora þohte ðæt he ðanon
scolde gesecean folc Beowulf 691
[none of them thought that he then should seek the folk]

Prototype sentence, Component B (cf. model above):

- 8) he [experiencer/subject]...þenceþ ðæt his wise wel hwam
[experiencer/object] þince eal unforcuþ Vainglory 30
[he thinks that his way seems properly honorable to all]

Innovation sentences, Component Y (cf. model above):

- 9) ðæt mon [experiencer/subject] hreowsege his synna [causative/object] Gregory Pastoral Care (Sweet) 421, 24
[that one repents his sins]

After this innovation had occurred, the 'experiencer' verbs no longer differed from the group of personal verbs that always had been able to take an experiencer subject. This is illustrated in 8) above where one of the personal verbs þencean 'to think, to consider' has always taken an experiencer subject, just as the other personal verbs can. The permissible roles for the subject nominal associated with these verbs changed from either the causative role or none (cf. a) below) to include the experiencer role (cf. b) below). Innovation II did not affect the weather and time verbs nor the impersonal uses of BE as those verbs could not take an agentive nominal.

a) impersonal subject/"impersonal" verb/object

no semantic role	experiencer role
or antecedent	with antecedent
causative subject	causative nominal or
optional	adjective, optional

- 10) þæt [causative/subject] me [experiencer/object]...on minum
hyge hreowed Genesis B 426
[that grieves me in my mind]

- 11) hit [roleless subject] be [experiencer/object] wyrse ne
 maeg on þinum hyge hreowan þonne hit [roleless subject]
 me aet heortan ded[†] Genesis B 426
 [it may not rue you the worse in thy mind than it does me
 at heart]

- b) personal subject/personal verb/object
 experiencer role causative role
 with antecedent with antecedent

- 12) ne getweoge ic [experiencer/subject] nawuht [causative/
 object] be Godes aecnessa The Shrine (Cockayne) 195, 4
 [nor do I doubt naught about God's eternity]

No innovation occurred to change the experiencer subclass of verbs taking experiencer nominals as objects only to a subclass that could take experiencer nominals as subjects. The only innovation involved in this was Innovation II which permitted a subject nominal associated with these verbs to carry the experiencer role as well as the causative rule. Innovation I permits the continued use of the roleless hit as subject.

There are two exceptions to the subconscious development of an innovation: style variation (a matter of word choice or word order) and the creation of kenning and metaphor. Style variation is not innovation at all but is a range of permissible ways to say the same thing within the confines of the linguistic structure. No innovation is involved in style variation at all. Style variation is a deliberate, conscious act by a speaker to obtain different effects such as to relieve monotony, to be ironical, scathing, or funny.

kennings and metaphors are also deliberately created by their originators. Unlike style variation, they are true innovations. However, they differ from other linguistic innovations in that the evoked prototype configurations originate in real world experiences, not being restricted to origination in language as is the case with all other innovation that involve language. The Old English kennings for bat 'boat' or scip 'ship' given below clearly reveal the innovative origin of each one and also the fact that the prototype configurations are derived from aspects of culture other than language.

- 13) fearoðhengestas [current or ocean horses]
 sae mearas [sea horses]
 mere hengest [sea horse]
 sae wudu [sea wood]
 lagu mearh [water horse]
 yðmearh [wave horse]
 wegflota [wave floater]
 hringed stefna [ringed neck]

For all of the above kennings the prototype referents all exist in the real world, but not in language. Even though kennings

provide variant ways to say the same thing in order to avoid repetition of the same word, unlike style variation *per se*, they come from innovative activity where the prototype configurations are all drawn from the culture and not from the language. The mental images these innovations evoke enhance the message but do not change it. Hypothesis 2 is accepted.

H3) "Innovation in syntax, morphophonology, and semantics requires that the antecedent prototype configuration be found only in the language with the antecedent prototype configuration involved in the creation of metaphor or kenning is found outside the realm of language in other parts of culture. This is also true for semantic change of individual lexical items." For an innovation to occur in syntactic, morphophonologic or the semantic systems of language excluding individual word meaning, the prototype configuration evoked by the stimulus configuration can come only from the innovator's language experiences. However, in the creation of metaphor the antecedent prototype configurations are derived from the innovator's personal experiences outside the realm of language in other parts of the culture. The kennings and metaphors analyzed so far utilize the recombination patterns XR_2Y rather than XR_1B that is used in innovation occurring in the syntactic, morphophonological, and semantic components. This may well be because the reference is located outside of language in other cultural systems. What applies in the creation of kenning and metaphor also applies in the creation of new lexical items and slang. Hypothesis 3 is accepted.

The analysis of some 30 innovations that occurred in English over the past 1500 years suggests that of the six basic element recombinations possible (XR_1B , AR_2Y , AR_1Y , XR_2B , XR_1Y , and AR_2B) there is a preferred pattern. It is XR_1B where X_1 replaces A_2 in the context of B and R_1 , although XR_1Y and XR_2B also occur occasionally. Further innovations need to be considered before it is possible to make a definitive statement regarding pattern preference and ranking.

Barnett's theory of innovation and cultural change fits the reality of language and language change. In this it differs from other theories of language and language change which fit only the particular theory of language each is conceived under but not any actual language and actual language change. Some modern theories of language change consider the primary input level to be children learning the language, restructuring the grammar according to their perceptions of it and thereby restructuring the language. Barnett's theory does not restrict innovation and cultural change to children but includes all individuals as possible innovators. It is quite naive to suggest only children bring about lasting innovation and language change while adults only restructure their individual grammars.

Note: The Modern English translations of the Old English examples are literal ones, done deliberately. Standard spoken Modern English was not the guiding force or goal.

APPENDIX A

A Brief Recapitulation of Barnett's Theory

According to Barnett's theory, since culture includes language, language change occurs exactly as it does for other cultural items, involving exactly the same cognitive processes. The first act governs the creation of an innovation itself by some one person, usually unknown, while the second governs the acceptance of that innovation by other members of the society. The theory holds that all innovation comes from a response to some cultural or personal pressure felt by the innovator. He then recombines the elements of the stimulus and prototype configurations which arise out of his past and present experiences. The present experience (stimulus configuration) calls forth past experience (prototype configuration). Through the action of the cognitive processes of substitution, equation, and discrimination something new is then created from a reworking or recombination of the old parts with each innovation resulting from an "amalgamation" of past and present experiences (Barnett, 1983, 71). If there were no innovation, there would be no cultural or linguistic change. The theory asserts that generational cultural differences, including language, are the result of innovation, and not faulty perception of what the elder generation said by the younger generation, followed by an attempt to deal with this discrepancy by the child's restructuring of his "internal grammar" to deal with the faulty perception. This is in distinct contrast to much current linguistic thought.

The innovator, in response to a perceived 'want or need', comes up with a stimulus configuration (XR_2Y on Figure 1) which is developed out of his present experience.² This stimulus brings to mind a prototype configuration (AR_1B on Figure 1) as a possible solution to the perceived need.¹ According to Barnett, each personal experience is remembered and registered, and all future experience is processed through the remembered experiences subconsciously. Any past experience can become a prototype for an innovation in the following manner:

a) X (present stimulus) recalls A (previous experience) by reason of the commonality or similarity (C on Figure 1) deemed existing between X and A;

b) A's recall elicits the correlates B and R_1 , the relationship existing between A and B;

c) This gives X the same meaning to B that A has to B;

d) XR_1B is created; it is new to the extent that X differs from A (Barnett, 1982, 70).

Either X, Y, or R_2 of the stimulus configuration can call forth a prototype configuration in response to a felt want or need, with the subsequent development of an innovation from the recombination of the components making up the stimulus and prototype configurations:

a) XR_1B : X replaces A in context of B and R_1 ;

- b) AR_2Y : Y replaces B in context of A and R_2 ;
- c) AR_1Y : Y replaces B in context of A and R_1 ;
- d) XR_2B : X replaces A in context of B and R_2 ;
- e) XR_1Y : X replaces A and Y replaces B in context of R_1 ;
- f) AR_2B : R_2 replaces R_1 in context AB.

Selected References

- Barnett, H. G. 1953. Innovation: The Basis of Cultural Change. New York:McGraw-Hill.
- 1965a "Laws of Socio-Culture Change". International Journal of Comparative Sociology VI. 207-230.
- 1965b "The Innovative Process". In Alfred L. Kroeber: A Memorial. Kroeber Anthropological Society Papers, No. 25. Berkeley, California:University of California.
- 1976 "The Acceptance and Rejection of Change". In Social Change: Explorations, Diagnoses, and Conjectures. G.K. Zollschan and W. Hirsch, eds. New York:John Wiley. 497-519.
- 1983 Qualitative Science. New York:Vantage.
- Cassidy, Frederic G., and Richard N. Ringler, eds. 1971. Bright's OLD ENGLISH Grammar and Reader. New York:Holt.
- Collins, Janet Duthie. 1980 "An Hypothesis for Old English Object Noun Case Alternation". In The Sixth LACUS Forum 1979. W. C. McCormack and H. J. Izzo, eds. Columbia, South Carolina:Hornbeam Press. 125-131.
- 1985 "Old English: A Language Indo-European in Form but not Function". In The Eleventh LACUS Forum 1984. Robert A. Hall, Jr., ed. Columbia, South Carolina:Hornbeam Press. 392-403.
- 1987 "A Theory for Language Change: Barnett's Theory of Cultural Change". A paper given at the Fourteenth LACUS Forum, York University, Toronto. To be published September 1988, in The Fourteenth LACUS Forum 1987.
- Collins, Lloyd R. 1977. "The Innovation Process in a Modern Industrial Complex". Human Organization 36. 282-290.
- Labov, W. 1963. "The Social Motivation of a Sound Change". Word 19. 273-309.
- Lightfoot, David W. 1979. Principles of Diachronic Syntax. Cambridge, England:Cambridge University Press.
- Newmeyer, Frederick J. 1980. Linguistic Theory in America. New York:Academic Press.
- Parker, F. 1976. "Language Change and the Passive Voice". Language 52.2. 449-460.

LOSS OF WORD-FINAL QUALITY DISTINCTION BETWEEN [œ] AND [ø]
IN FRENCH: AN ONGOING CHANGE AT THE END OF THE 18TH CENTURY*

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0. Introduction

In stressed syllables, the opposition between the front mid round vowels œ and ø in current standard French only exists in checked syllables; it is completely neutralized at the ends of words where one finds exclusively the mid-closed ø (Fouché et Dauzat 1949:17; Martinet et Walter 1973; Walter 1977:40-42; 115-116); ex. [zø̃n] jeûne 'fast': [zœ̃n] jeune 'young' but [blø̃] ([*blœ̃]) bleu 'blue_{masc.}', bleue 'blue_{fem.}', bleus 'blue_{masc. pl.}', bleues 'blue_{fem. pl.}'. This neutralization is so well integrated that in the survey conducted by Martinet in an officers' war camp in 1941, no minimal pair was submitted which could have shown a possible opposition between these two vowels at the ends of words (Martinet 1945:205). In her survey of regional French, Henriette Walter proposed the minimal pair peu 'little': (je, tu) peux '(I, you) can', pointing that she did it only for form's sake (1982:79).

I want to explore the following question: do all the current mid-closed ø's at the ends of words result from a previous mid-closed vowel or do we have to postulate that some of them result from the closing of a mid-open œ? To the best of my knowledge, that hypothesis has not been explored for eu, even though some linguists have alluded to it (Walter 1976:185; Moreux 1985:126).

The monophthongization of the middle French eu was achieved by 1550 (cf. Thurot 1881-1883: T.I, 442-444). Historians of French do not always agree on the quality of the vowel which resulted from it,¹ but for them, it is clear that word-final eu's were closed before the 17th century (Dauzat 1930:§107; Pope 1952:§585; Fouché 1969:252-253; Ewert 1969: §§ 53, 69). If that is so, the evolution of ø would be parallel to that of word-final front mid-closed e which almost never resulted from the closing of the mid-open ε (for word-final ε > e, see Straka 1981: 211-212).

The closing of early œ's to ø makes sense in the history of French since we know for sure that it happened for the round back mid-open ɔ (Morin 1988; Morin, Langlois, Varin, forthcoming; Dagenais, forthcoming), that is, words like écho 'echo', croc 'fang', galop 'gallop', trot 'trot' have historically a short

open o, and merged in the course of the 19th century with the mid-closed o of crocs 'fangs', dépôt 'depositing', dos 'back', chaud 'hot', etc. To my knowledge, that hypothesis has not been explored for eu.

My presentation will proceed as follows: 1) I will establish first that [œ] was the phonetic realization of short / ø / in word-final position in the 18th century; 2) I will present data which show the ongoing change of [œ] to [ø] in that position around 1785 (or, at least, was perceived at that time) and its not-yet-completed nature even 50 years later.

In general standard French, as we shall see, the merging of the two qualities of word-final eu's is independent of the neutralization which will later merge long and short vowels at the end of words.

1. Word-final opposition [œ]:[ø] in the 18th and 19th centuries

It is not before the end of the 17th century that grammarians explicitly distinguished between two qualities of eu (Thurot, 1881-1883, T.II:570; Millet 1933:53; Pope 1952: 585). Dangeau is the first to oppose the quality of the eu of serviteur 'servant', meilleure 'better' to the one in fâcheux 'troublesome' and goutteux 'gouty (subject)'; he refrained from developing the question; it was, he said, "trop de nouveauté à la fois" ([1694] 1927:49).

Many grammarians of the 18th century omit any mention of quality for eu; they nevertheless agreed about a length opposition between, for example, the long eu of jeûne 'fast' and the short one of jeune 'young', the long eu of bleue 'bluefem.', bleus 'blue_{masc, pl.}' contrasting with the short one of bleu 'blue_{masc. sg.}'; see, for instance, Buffier 1709, Vaudelin 1713 (Martinet 1974:155-167), Restaut 1730,² d'Olivet 1736, 1771, Vallart 1744, Gattel 1797 and De Wailly 1799. But it is worth noting that most of them also failed to observe different qualities for o and a, that is, like most grammarians of the 16th and 17th century, they recognized a quality distinction just for e's (cf. also Martinet 1974:163-164); it is the case, for example, of Buffier (1709:360, 364; 351-352), Vaudelin (Martinet: 1974:160), Restaut (1730: 2-3) and Vallard (1744: 28;32ssq.); De Wailly in his dictionary of rhymes even almost ignored the different e's. In 1778, Domergue referred in addition to different qualities of o (55), not of a.³ Some others, like d'Olivet (1736, 1771), and later Gattel (1797) which makes explicit reference to his work, do admit different o's and a's but referred to them very sporadically.⁴

Nevertheless, several grammarians of the same century agreed that eu had two qualities. Unfortunately, some of their testimony is of no direct use for our purpose: either they only signaled these two qualities in checked syllables, using the pair jeune 'young': jeûne 'fast' - cf. Duclos ([1754] 1780), De Wailly (1763), Beauzée (1767) and Fromant (1769) quoted by Millet (1933:65-66; 66-67; 71-73; 73-74), or, like Dangeau, they opposed examples with a different syllabic structure ([1694] 1927), that is, an open œ in checked syllables, a closed one when word-final - cf. Montaignon (1785:53-54), Dumas (1733) quoted by Millet (1933:63) and Harduin (1757:19, Fn.).

To the best of my knowledge, only six grammarians explicitly described the short final eu as open, the long one as closed; they are Boulliette 1788 (1st ed. 1760),⁵ Demandre 1769, Le Roy 1775 and for the 19th century, Thiébault 1802, Morel 1804 and Faure 1831. We can also be confident that Régnier-Desmarais 1706, Boindin 1753 and Antonini 1753 recognized the difference between a final short open œ and a long closed œ, but it would take too long to demonstrate that.

1.1 Boulliette [1760] 1788

In his Traité des sons de la langue françoise ([1760] 1788), Boulliette (Canon of Auxerre, Millet 1933:68) described all French vowels as having an acute ("aigu") degree (8-9). The vowels i, u, ou and é are described as having no other degree (10); they are said to be "invariables" (13). In addition to their acute degree, è, eu, o and a are said to have a deep, heavy ("grave") one so that these vowels "font entendre chacune des sons fort différens" (10); Boulliette called them "variables" (12); he gave the following examples (9; 13):

(1) <u>acute</u> ("aigu")	<u>deep</u> ("grave")
a. trompette 'trumpet'	tempête 'storm'
une hotte 'basket'	un hôte 'host'
une malle 'trunk'	un mâle 'male'
b. un jeu 'game'	le jeûne 'fast'

As expected, he associated the acute sounds with the short vowels, the deep ones with the long ones (10); he systematically referred to the quality of the vowels to describe the phonological oppositions between the so-called 'variables'. Consequently, he opposed an acute eu, which we interpret as short, to a deep one, which is to be understood as long, in the following pairs:

- | | | |
|-----|--|--|
| (2) | <u>acute</u> (short) | <u>deep</u> (long) |
| a. | voeu 'vow' (142)
jeu 'game' (9)
feu 'fire' (142) | voeux 'vows' (143)
oeufs 'eggs' (143)
je veux 'I want' (143) |
| b. | jeune 'young' (13) | jeûne 'fast' (9, 13) |

The examples in (2a) show that the final acute eu of the singular forms voeu 'vow', jeu 'game' and feu 'fire' is opposed to the deep sound of the plural ones like voeux 'vows' and oeufs 'eggs' ([œf] oeuf sg. 'egg') and to the verbal form je veux 'I want'; the same is true in checked syllables as illustrated in (2b) by the minimal pair jeune 'young'; jeûne 'fast'. The short and long eu's of (2) correspond to the historically short and long ones.

1.2 Demandre 1769

It is not known where Demandre came from, but he taught in Paris (d'Amat et Limouzin-Lamothe, 1965:954). He recognized two qualities acute ("aigu") and deep ("grave") for eu, o and a; he gave (247) the canonical examples I repeat in (3) below:

- | | | |
|-----|-----------------------|-----------------------|
| (3) | <u>acute</u> ("aigu") | <u>deep</u> ("grave") |
| | jeune 'young' | jeûne 'fast' |
| | cotte 'tunic' | côte 'rib' |
| | patte 'paw' | pâte 'paste' |

As in Boulliette's analysis, the acute sounds are correlated with the short eu, o and a, the deep ones with the corresponding long vowel (291).

Still following Boulliette, Demandre described the forms in (4) as involving an acute eu, that is, [œ] vs a deep [ø]:

- | | | |
|-----|--|------------------------------|
| (4) | <u>acute</u> ("aigu") | <u>deep</u> ("grave") |
| a. | jeu 'game' (511)
feu 'fire' (257)
peu 'little' (257) | |
| b. | jeune 'young' (247; 257; 509) | jeûne 'fast' (247; 509; 511) |

In addition, he specifically gave jeu 'game' as involving a short vowel (301), jeûne 'fast' a long one (301, 526). Voëu 'vow' is not namely said to entail the mid-open [œ] but the word appears in the same list as : coeur 'heart', oeuf 'egg', oeuvre

'work', etc. (526), that is, with forms which contain a historically short eu that we assume to be open.

1.3 Le Roy 1775

In the introduction to the third edition of Le Roy's Traité de l'orthographe, Restaut (1775) (see fn. 2) opposed a final short open eu to a long closed one:

- (5) [œ̃] Eu (town of Normandy) [ø̃] eux 'them'

It is said that eu is weak and short in Eu (town of Normandy) but that it becomes long and stronger in the pronoun eux 'eux' (xxxij). He probably meant that in word final position all short eu's are open, all long ones closed. As a matter of fact, it is said that odeur 'smell' is short, its plural form long "sans néanmoins changer le son"; the same statement is made about majeure^{fem.} which is short in la majeure part 'the greater part' but long in Cette fille est majeure 'This girl is of age' "& néanmoins le son est encore le même" (xxxij). In other words, the author specifies the sound when the correlation between quality and length is broken, that is, for the examples above, when a long eu stays open.

1.4 Thiébault 1802

At the very beginning of the 19th century, the Lorrainer Thiébault (1802), whose book received official recognition as a school manual (Biographie universelle..., 1824, T.45-46:408), still opposed what he called a deep e ~ thin ("maigre") ~ closed eu to a deep open ("sourd et ouvert") e ~ deep eu (for the use of closed for open, open for closed, see fn. 4) (20-21):

- (6) thin ("maigre") deep open ("sourd et ouvert")
- a. feu 'fire' vœux 'vows'
- b. seul 'lonely' jeûner 'to fast' (jeûne 'fast':21)

As can be seen in (6), the examples are about the same as the ones we have seen: feu_{sg.} 'fire' which has the same eu as seul 'lonely' is opposed by a quality distinction to vœux_{pl.} 'vows' and jeûner 'to fast'. Like his predecessors, he divided the French vowels into two groups: one in which the vowels manifest just one sound in any situation; they are called "constantes" (12) as is the case of i, u, ou, é; the other group contains the vowels whose sounds vary; they are called "variables" (12): è, eu, o and a (cf. also 18-19). For eu,

Thiébauld gave the following examples, using the terminology "foible": "grave" (20-21):

- | | | |
|-----|--|--|
| (7) | <u>thin</u> ("foible") | <u>deep</u> ("grave") |
| a. | feu 'fire'
voeu 'vow'
monsieur 'gentleman' | feux 'fires'
vœux 'vows'
messieurs 'gentlemen'
bleus 'blue _{pl.} ' |
| b. | | noeud, noeuds, 'knot', 'knots'
il se meut 'he moves' |

Generally speaking,⁶ the distribution of thin and deep eu's corresponds to the historical distribution of the short and long eu's. As a matter of fact, in the prosodic rules of the last part of his book (159ssq.), Thiébauld specified that the final syllables with a plural s, an x or a mute e are long (188). The singular noeud 'knot' and il meut 'he moves' with a deep eu are thus the only deviant forms for they are historically short.⁷

1.5 Morel 1804

Morel was, very likely, from Lyon.⁸ In in Essai sur les voix de la langue françoise (1804), he reported and criticized many well-known descriptions of the vocalic system of French like the ones of Beauzée, Duclos, etc. In his own description, all the non-high vowels can be acute ("aigu") and deep ("grave"); that is, for him, [ɛ], [ø], [o] and [a] are deep modifications of the acute [e], [œ], [ɔ] and [a] (xvj; 9; 23; see also 69ssq.). He explicitly distinguished two pronunciations for eu (xvj) in word final position and in checked syllables; cf. (8):

- | | | |
|-----|-----------------------|------------------------------|
| (8) | <u>acute</u> ("aigu") | <u>deep</u> ("grave") |
| a. | (il) peut 'he can' | (je, tu) peux '(I, you) can' |
| b. | jeune 'young' | jeûne 'fast' |

The statement is brief but very clear and, again, the acute sound of (il) peut 'he can' and jeune 'young' corresponds to an historically short eu. Notice nevertheless that (je, tu) peux are historically short; the long eu is analogical to (je, tu) veux. Morel did not however mention length; as a matter of fact, it is almost never referred to in his description.

1.6 Faure 1831

In 1831, Faure still opposed two qualities for eu: a closed

voice ("voix fermée") vs an open one ("voix ouverte") (57); in the tables which contain examples of these "voices" (57-60), he wrote "eû" under the closed eu and "eû" for the open one "eû" (see fn. 4 for 19th century terminology). Since in French orthography the circumflex accent traditionally signals a long vowel, we will assume that the mid-open eu is short, the mid-closed one long. He gave the following examples (60):

- | | | |
|-----|------------------------|----------------------|
| (9) | <u>closed eû</u> = [œ] | <u>open eû</u> = [ø] |
| a. | le jeu 'the game' | je veux 'I want' |
| | il pleut 'it rains' | eux 'them' |
| | il se meut 'he moves' | ceux 'those' |
| b. | (il) peut 'he can' | un peu 'a bit' |

As can be seen in (9), the quality distinction is maintained in word final position. However, it no longer corresponds to the previous distribution of short and long eu's as shown in (9b) with un peu 'a little' that we expected with a word-final short vowel.⁹ Notice that according to its etymology, il se meut 'he moves' has a short eu.

The testimonies we have reported on spread over a century, that is, from 1760 to 1831 (for 1760, see fn. 5). They show that in varieties of French perceived by the grammarians as the French norm, word-final short eu was phonetically realized by a mid-open [œ]. We have also seen that the evolution which matched the historically short eu with [œ], the long ones with [ø] (but see fn. 6,7) does not hold for all varieties since in 1831 Faure described peu 'little' with a long closed eu.

In the next section, I will summarize descriptions which point to the change of the word-final short eu to a word-final closed one around 1785, that is the change of final [œ] to [ø].

2. Féraud 1768, 1787 and Domergue 1784-1792

The testimonies of Féraud and Domergue are important for they indicate quite clearly a phonetic change in the realization of word-final short eu's. The description Féraud gave of eu's in 1787 is different from the one he gave in 1768. Domergue (1784-1792), on the other hand, rejects any difference of quality for final eu's even though he maintains a length opposition between them. These testimonies show that the loss of the quality distinction between previous short and long eu's precedes, in these varieties, the loss of the word-final length opposition for both clearly preserve the historically word-final long eu's.

2.1 Féraud 1768 and 1787

In his two dictionaries (1768 and 1787), Féraud (of Marseille) used a phonetic type transcription to represent the pronunciation of the listed words and, especially in the first one, he commented at length on phonetic details. Since he said that his inspiration came from d'Olivet, it is not surprising that, except for the various e, he remained almost silent on vowel quality. But still, his description points clearly to a change which can very likely be interpreted as a variation in usage between final short open eu's and final short closed ones.

In 1768, Féraud recognized three kinds of word-final eu's: long, doubtful ("douteux") and short, the doubtful being, he said, vowels whose length depends on their position in a group - long under tonic accent, short inside a group (I:828; II:vii). Other grammarians use doubtful to refer to vowels for which the length is not yet fixed by usage (for ex. d'Olivet 1736:52), a usage which very likely is also that of Féraud.¹⁰ Cf. (10) below:

(10)	<u>long eu</u>	<u>doubtful eu</u>	<u>short eu</u>
a.	aveux 'confessions'		aveu 'confession'
	jeux 'games'		jeu 'game'
	neveux 'nephews'		neveu 'nephew'
	feux 'fires'		feu 'fire'
	feue 'late (fem.)'		feu 'late (masc.)'
	bleus, bleue 'blue pl.; fem.'		bleu 'blue' (masc.)
b.	dieux 'gods'	dieu 'god'	
	lieue 'league'	lieu 'place'	
	banlieue 'suburbs(sg.)'		

The opposition between long and short eu's corresponds overall to the pattern we have seen before, that is, the plural forms like feux 'fires', bleus 'blue pl.' as well as the feminine feue 'late', bleue 'blue' are given with a long eu whereas the masculine singular feu 'late', 'fire', bleu 'blue' are said to be short.¹¹ Typically, the doubtful eu appears after yod, as in dieu 'god', lieu 'place'; also Beaulieu, moyeu 'nave', Ponthieu.¹² As can be seen in (10b), the doubtful eu of dieu and lieu is opposed to the long one of the plural and feminine forms dieux 'gods' and lieue 'league' so that the doubtful eu's are different from both the short and long ones.

In 1787, Féraud does not mention any final short eu: cf. (11):

(11) long eu

jeux 'games'
 neveux 'nephews'
 dieux 'gods'
 feux, feu 'fires'; 'late(fem.)'
 bleus, bleue 'blue (pl.; fem.)'
 lieux; lieue 'places'; 'league'

doubtful eu

jeu 'game'
 neveu 'nephew'
 dieu 'god'
 feu 'late (masc.)'; 'fire'
 bleu 'blue'
 lieu 'place'

The examples above show that all former word-final short eu's were later transcribed as doubtful.¹³

Since the doubtful eu of 1787, like the one of 1768, stays apart from the long eu, we have to recognize a difference between the two. My hypothesis is that the previous word-final short eu stays short but that its quality is affected, that is, between 1768 and 1787, the word-final mid-open [œ] stays short but it closes to [ø]. Since Féraud pronounced final previous short eu doubtful in 1787, it is very likely that the change [œ] > [ø] was still to be completed, but it makes sense to think that for some speakers it was.

2.2 Domergue 1784-1792

In the introduction, I mentioned that in 1778 the Provençal Domergue referred to different qualities of e and o but not to different qualities of eu and a. This does not mean, as we will see, that he did not admit these but, for some reason, he did not say a word about them. However, he gave explicit comments on these in the journal he edited from 1784 to 1792. About eu, he vigorously rejected any quality distinction. In the issue of May 1785, he grouped the four vowels i, u, ou and eu as being affected by length exclusively, but e, o and a are pronounced, in addition to their prosodic value (short:long), with a more or less open sound (T.II:623). As expected, length and quality correlate for the last group so that the more open sound of the e, o and a is said to be long, the closer sound short (T.II: 623-624).¹⁴ Six years later, the "Comité de prononciation et d'orthographe", a section of the "Société délibérante des amateurs de la langue française" in which Domergue played a predominant role, distinguished among French vowels as many as six e's (mute, closed, long closed, medium, open, very open), five o's (closed, medium, open, very open and muffled ("sourd")), and four a's (closed, medium, open, very open) but still recognized only short and long i, u, ou and eu (T.II, 1791:253-254).¹⁵

Domergue, to the best of my knowledge, is the very first

grammarians to explicitly reject two qualities for eu after grammarians had clearly admitted them in word final position. Since he otherwise described a more or less subtle gradation for other vowels, we can be reasonably sure that in fact he meant what he said, even though it seems counter-intuitive in checked syllables where the quality distinction between [ʒœn] jeune 'young': [ʒø̃n] jeûne 'fast' still is the norm.

Anyhow, it is very striking that the vigorous rejection of two qualities for eu appears exactly at the end of the 18th century, that is around the time Féraud changed his own description. Since Domergue and Féraud were acquainted with each other's works, and each even had a bone to pick with the other as can be seen in Domergue's publication (cf. T.II, 1787:45-48, 88-91, 126-131, 325-328, 693, 721-724 for Domergue's partial review of the Dictionnaire critique of Féraud and T. II, 1787: 791-807 for Féraud's reply), their divergences cannot be taken as accidental.

Conclusion. We can summarize the data presented here along the following lines: from Boulliette 1760 to Faure 1831, word-final mid-open œ are well attested and except for noeud_{sg}, which is said to be [ø] by Thiébault in 1802 (cf. also fn. 11), the opposition between word-final [œ] and [ø] is systematically correlated with length, that is short mid-open œ, long mid-closed ø̃. For the same period, this word-final opposition corresponds to the distribution of short and long eu's of the 17th century.

With Faure 1831, the quality distinction no longer corresponds to this historical distribution of short and long eu's.

Taking into account the descriptions of Féraud and Domergue, and considering that linguistic changes regularly spread over years, my hypothesis is that the loss of quality distinction between word-final [œ] and [ø] began around 1768, gained ground till the end of the century without losing its variability, and disappeared gradually from general French between 1787 and the beginning of the 19th century. Some 50 years after the change had been initiated, it is not integrated in Faure's variety. His description can be explained in two ways: 1) the change is still to be completed in general French or 2) Faure describes a regional variety whose evolution on that point is different from the norm. Of these two hypotheses I think the second one to be adequate but I cannot yet document it.

From the data I have at my disposal, it is also apparent that the change of word-final mid-open to mid-closed eu's affected exclusively the quality distinction which was correlated

with length, so that the mid-open œ closed to ø while maintaining its original short length.

Notes

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¹ Fouché (1969) considered that the monophthongization created a mid-closed eu (252-253) but since Dauzat (1930) stated that "le se ferme comme l'o et l'e à la finale..." (110), he apparently considered that eu was first opened.

² However, Restaut published in 1775 a new edition of the Traité de l'orthographe... of Le Roy with explicit comments on the qualities of French vowels (see above §1.2). These comments do not appear in the second edition (1747). It makes sense to think they are, in 1775, from Restaut.

³ In the Journal de la langue françoise he edited between 1784 and 1792, Domergue specified though that in "le bel usage", a had different qualities (T.I, 1785, 334, also 373, 442, etc.; T.II, 1791: 303, 306, etc.; cf. also Millet 1933:76-78 for Domergue 1795). Cf. also 2.2 above.

⁴ For instance, d'Olivet specified once or twice that long a is open or very open but systematically failed to repeat the information when he listed the words which have a long a (ex. astrolabe 'astrolabe', câble 'cable', grâce 'God grace', etc. 1771:70); the same is true for o; he specified that globe 'globe' and lobe 'lobe' have a long closed o, which he said to be open - the normal terminology for the period, that is, open vowels were said to be closed, closed ones open; cf. Millet (1933:30; 40-41; 46-47) - but he did not repeat it for other words with a long o like contrôle 'control', atome 'atom', aumône 'alms', etc. (86-87).

⁵ I could not consult the first edition Millet quoted (1933:68) but he reported the contrast between the acute ("aigu") sound of jeu 'game' vs the deep ("grave") one of jeune 'fast' (68-69). For our purpose, it is reasonable to consider that the word-final mid-open eu existed since at least 1760.

⁶ The plural voeux 'vows' and noeuds 'knots' are etymologically short as can be seen in Lanoue 1596 (cf. Morin and Desaulniers, forthcoming) but all word-final vowels of plural nouns and adjectives were lengthened in the course of the 17th century. In other words, the long eu of voeux 'vows' and noeuds 'knots' is regular when we take the 17th century as the source of

18th century facts.

⁷ In Old French, the 3sg muet "(il) meut" (< movet) 'he moves' is short. The long eu is probably analogical of the 2nd sg. which was long.

⁸ He was a member of the Academy of Lyon (cf. title-page of his Essai 1804) and traditionally, members of these regional academies were natives of the area.

⁹ Faure also gave a list of the possible "diphthongs" in French, that is the possible sequences glide + vowel (1831:143-148). After the series in ièu (sic) which contains lieu 'lieu' mieux 'better', yeux 'eyes', etc. (all the other forms in -eux), he said that French lacks a sequence of glide + closed eu (145-146). Considering that in his terminology closed means open (see fn. 4 above), we have to understand that lieu 'place' is realized with a closed eu. It has moved apart from the previous distribution of the historically short and long eu's. In 1768, Féraud will describe the forms yod + eu as different from the one in consonant + eu; cf. § 2.1 above.

¹⁰ Anyhow, the definition Féraud gave of the doubtful vowels is incomplete. In French the tonic accent falls on the last syllable so that we would not expect to find doubtful vowels other than in last syllable. Nevertheless, the author described both in 1768 and in 1787 many o's as doubtful at the beginning of words or word internally; ex. baudet 'donkey', beauté 'beauty', se gausser 'to mock', jauger 'to have a capacity of', pauser 'to keep somebody waiting' (vs the short o of botter 'to put boots on', arroger 'to assume (without right)', arroser 'to water' (1768)). We even find causer 'to cause' described in 1787 with a short o (but a doubtful one in 1768).

¹¹ The only singular form given with a long eu is noeud which is transcribed neû by Féraud. In 1787, he did not mention the quantity of the vowel but gave the pronunciation as neu and not as *neû which would much more regularly represent a long eu in Féraud's system. Since a change from a word-final long eu to a short one does not fit the general pattern, I cannot explain the form and here, I will not take into account the long eu of 1768 in noeud which could simply be an error. Notice however that Thiébault (1802) gave noeud 'knot' with a deep eu (cf. (7b)).

¹² In the first dictionary, three words of the form yod + eu exhibited a short eu: adieu 'goodbye', aissieu 'axle(-tree)', and Condrieu (town of Lyonese). In the dictionary of 1787, the length of eu of adieu 'goodbye' and essieu (also written aissieu) 'axle(-tree)' is not given and the transcriptions a-dieu et è-cieu which are given next to the lexemes only signal that eu is not long for both are given without a circumflex accent, the typical transcription of long vowels in Féraud's transcriptions; if it were long, we would find the transcriptions *a-dieû and *è-cieû. Notice that in 1768,

aisselle is given twice, in the dictionary, once with a short eu in the entry aisselle 'armpit', aissette '(Cooper's) adze', another time, in the entry essette, essieu where eu is regularly described with a doubtful eu. Condrieu is omitted in 1787 as are most of the proper nouns.

¹³ Over whole data of 1787, Féraud explicitly gave 10 word-final graphic eu's as doubtful. Unfortunately, he omitted specifying the length of 12 similar forms; ex. enjeu 'stake', voeu 'vow'. Yet, we will assume that the change occurred in all the forms. Still in 1787, Féraud mentioned 4 words as containing a short eu:

- (i) feu 'fire', bleu 'blue', jeu 'game'
- (ii) alleu 'freeholder', aveu 'confession'

It is under the lexical entry EU that the words in (i) are said to be short exactly where Féraud stated a general principle about final short vowels for masculine, long ones for feminine and plural. It is reasonable to consider that he simply copied what he had said in his first dictionary. Thereupon, I have no explanation for the forms in (ii).

¹⁴ Notice however that the vowels which are submitted to a quality distinction are each said to exhibit three different sounds: they are short and closed, long and (very) open or "moyens quant à la prosodie, & par conséquent ils n'exigent qu'une ouverture de bouche moyenne dans miracle, prophète, nôtre." (T.I:623-624). It is not clear here what "medium" ("moyen") means: a particular length between short and long or a specific quality of the vowels between the closed and open ones.

¹⁵ The same society admitted five nasals, that is, they made a distinction between en and in (in, ain, ein); ex. lien: 'link'; malin: 'cunning'; bain: 'bath'; plein: 'full' (T:II, 1791:254). Domergue agreed with the description; as a matter of fact, to a correspondent from Colmar who did not hear the difference ("Notre prononciation provinciale, peut-être trop grossière, ne me permet pas d'y découvrir une différence sensible" (T:II, 1792:564)), he stated again that in li-en 'link', musici-en 'musician', "EN... présente à l'oreille l'e sans aucun mélange d'i; au lieu que dans frein, divin, etc. l'e et l'i se font sentir." (565).

References

- Amat d', R. et R. Limousin-Lamothe (ed.). 1965. Dictionnaire de biographie française, Paris: Letouzey et Ané.
- Anonymous. 1824. Biographie universelle ancienne et moderne. Paris: Michaud.
- Antonini, Abbé. 1753. Principes de la grammaire françoise. Paris: Duchesne. Microreedited by the Archives de la Linguistique Française, #12. Paris: France-Expansion.

- Boindin, Nicolas. 1753. Oeuvres de Monsieur Boindin. Paris: Prault. Microreedited by the Archives de la Linguistique Française, #41. Paris: France-Expansion.
- Boulliette, Abbé. 1788. Traité des sons de la langue françoise et des caractères qui les représentent. Nouvelle édition, retravaillée, & considérablement augmentée. Paris: Varin.
- Buffier, Père Cl. 1709. Grammaire françoise sur un plan nouveau. Paris: Nicolas Le Clerc, Michel Brunet, Leconte et Montalant. Microreedited by the Archives de la Linguistique Française, #65, Paris: France-Expansion.
- Dagenais, L. Forthcoming. "Amorce de la neutralisation des 0 à la finale absolue et produit de la monophthongaison d'(E)AU" in Fourteenth LACUS Forum (York, Ontario, 1987), Sheila Embleton and W. Ahrens (ed.). Lake Bluff, Illinois: Linguistic Association of Canada and United States.
- Dangeau, Louis de Courcillon, Abbé de. 1694. Opusculs sur la grammaire. Reedition from the original editions (1694 and 1711) with an introduction and comments by Manne Eckman. Uppsala: Almqvist & Wicksells Boktryckeri, 1927.
- Dauzat, A. 1930. Histoire de la langue française. Paris: Payot.
- Demandre 1769. Dictionnaire de l'élocution françoise. Paris: Lacombe. Microreedited by the Archives de la Linguistique Française, #106. Paris: France-Expansion.
- Domergue, U. 1778. Grammaire françoise simplifiée, ou Traité d'orthographe. Lyon: l'Auteur. Microreedited by the Archives de la Linguistique Française, #124. Paris: France-Expansion.
- Domergue, U. 1784-1792. Journal de la langue françoise. Lyon. Repr. Geneva: Skatkin Reprints, 1978, 2 volumes (1784-1790; 1791-1792).
- Ewert, A. 1969. The French language. Repr. of the 2nd ed., 1943. London: Faber & Faber.
- Faure, S. 1831. Essai sur la composition d'un nouvel alphabet. Paris: Firmin-Didot Frères.
- Féline, A. 1851. Dictionnaire de la prononciation de la langue française. Paris: Firmin Didot Frères.
- Féraud, Abbé. 1768. Dictionnaire grammatical de la langue françoise. Nouvelle édition. Paris: Vincent. Microreedited by the Archives de la Linguistique Française, #156. Paris: France-Expansion.
- Féraud, Abbé. 1787. Dictionnaire critique de la langue françoise. Marseille: Jean Mossy et fils. Microreedited by the Archives de la Linguistique Française, #155. Paris: France-Expansion.
- Fouché, P. 1969. Phonétique historique du français. Vol. II, Les Voyelles. 2nd ed. Paris: Klincksieck.
- Fouché, P. et A. Dauzat 1949. "Phonétique et orthographe" in A. Dauzat (ed.), Où en sont les études de français. Paris: d'Artrey, 13-62.

- Gattel, C.-M. 1797. Nouveau dictionnaire portatif de la langue française. Lyon: Bruyset aîné et Comp.
- Harduin, A.-X. 1757. Remarques diverses sur la prononciation et sur l'orthographe. Paris: Prault. Microedited by the Archives de la Linguistique Française, #193. Paris: France-Expansion.
- Le Roy, Ch. 1747. Traité de l'orthographe française. Nouvelle édition, revue, corrigée & considérablement augmentée (unknown revisor). Poitiers: J. Félix Faulcon.
- Le Roy, Ch. 1775. Traité de l'orthographe française, en forme de dictionnaire. Nouvelle édition, considérablement augmentée sur la révision & les corrections de M. Restaut. Poitiers: J. Félix Faulcon.
- Martinet, A. 1945. La prononciation du français contemporain. Paris: Droz.
- artinet, A. 1974. Le français sans fard. 2nd ed. Paris: Presses Universitaires de France.
- Martinet, A. et H. Walter, 1973. Dictionnaire de la prononciation française dans son usage réel. Paris: France-Expansion.
- Millet, A. 1933. Les grammairiens et la phonétique ou l'enseignement des sons du français depuis le XVIIe siècle jusqu'à nos jours. Paris: J. Monnier.
- Montmignon, Abbé de. 1785. Système de prononciation figurée. Paris: Royez. Microedited by the Archives de la Linguistique Française, #289. Paris: France-Expansion.
- Morel, P. 1804. Essai sur les voix de la langue française. Paris: Normant.
- Moreux, B. 1985. "La "Loi de position" en français du Midi. II - Diachronie". Cahiers de grammaire. Université de Toulouse-le Mirail, Centre de Linguistique et de Dialectologie, 10:95-174.
- Morin, Y.-C. 1988. "Changes in the French vocalic system in the 19th century", ms., Université de Montréal.
- Morin, Y.-C. et G. Desaulniers. Forthcoming. "La longueur vocalique dans la morphologie du pluriel dans le français du 16e siècle d'après le témoignage de Lanoue" in Actes du XVIIIe Congrès International de Linguistique et Philologie Romanes (Trier, 1986), Dieter Kremer (ed.). Tübingen: Niemeyer.
- Morin, Y.-C., Langlois, M.-C. and M.-E. Varin. Forthcoming. "Tensing of word-final [ɔ] to [o] in French: the phonologization of a morphophonological rule". Romance philology.
- Olivet, P. J. Thoulier, Abbé d'. 1736. Traité de la prosodie française. Paris: Gandouin. Microedited by the Archives de la Linguistique Française, #300. Paris: France-Expansion.
- Olivet, P. J. Thoulier, Abbé d'. 1771. Remarques sur la langue française. Paris: Barbou. Repr. Geneva: Slatkine Reprints, 1968.

- Pope, M. K. 1952. From Latin to modern French with especial consideration of anglo-norman. Revised edition. Frome and London: Buther & Tanner.
- Régner-Desmarais, Abbé F.-S. 1706. Traité de la grammaire françoise. Paris: Jean Baptiste Coignard. Repr. Geneva: Slatkine Reprints, 1973.
- Restaut, P. 1730. Principes généraux et raisonnés de la grammaire françoise. Paris: Jean Desaint. Microreedited by the Archives de la Linguistique Française, #354. Paris: France-Expansion.
- Straka, G. 1981. "Sur la formation de la prononciation française d'aujourd'hui". Travaux de linguistique et de littérature. 19 (1):161-248.
- Thiébault, D. 1802. Principes de lecture et de prononciation à l'usage des écoles primaires. Paris: Genets.
- Thurot, Ch. 1881-1883. De la prononciation française depuis le commencement du XVI^e siècle d'après le témoignage des grammairiens. Paris: Imprimerie Nationale. Repr. Geneva: Slatkine Reprints, 1966.
- Vallart, Abbé 1744. Grammaire françoise. Paris: Desaint & Saillant. Microreedited by the Archives de la Linguistique Française, #387. Paris: France-Expansion.
- Wailly, N.-F. de, 1799. Dictionnaire de rimes par P. Richelet, retouché en 1751 par Berthelin. Nouvelle édition corrigée et considérablement augmentée par De Wailly CC et fils aîné. Paris: Plassan; Warée (An VII). Microreedited by the Archives de la Linguistique Française, #404. Paris : France-Expansion.
- Walter, Henriette 1976. La dynamique des phonèmes dans le lexique français contemporain. Paris: France-Expansion.
- Walter, Henriette 1977. La phonologie du français. Paris: Presses Universitaires de France.
- Walter, Henriette 1982. Enquête phonologique et variétés régionales du français. Paris: Presses Universitaires de France.

TOWARD A DYNAMIC SOUND LAW: THE SIBILANTS IN BRITISH

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Sibilant Changes in British

The Indo-European sibilant /s/ was already weak in the Celtic languages, leading Lewis and Pedersen (1974:16) to speculate that a "loosely articulated" /s/ could be assumed between /s/ and /h/. Indeed, /s/ becomes /h/ in the mutation system of Irish; for example, when the name Séan is governed by the preposition ó 'from' it is realized as ó Shéan, where the sh is [h]. (Broad transcription is used with reference to the changes, since such groups as [q], [k'], [k^w], and [k] all behave the same in the pattern of change.)

Among the British (or Brythonic) languages -- Welsh, Breton, and Cornish -- the "aspiration" of /s/ to /h/ occurred as historical change. The correspondences this left behind between /s/ in other Indo-European languages and /h/ in British were so transparent that Giraldus Cambrensis addressed them early in the thirteenth century in his Topographia Cambriae, pointing out that Latin sal 'salt' corresponds to Welsh hallt (Wright 1881:391-92). In the data table, we find a sampling of pertinent correspondences gleaned from the extensive treatments of the phenomenon in Lewis and Pedersen (1974:16-25) and in Jackson (1953:513-45) and Morris Jones (1913:133-45). Significant mention of the changes is also made in Lewis (1946:31) and Watkins (1961:65-66). We shall limit ourselves in this preliminary treatment to changes in the initial position.

All treatments to date include the aspiration of initial /s/ with some others affecting /s/. However, no further connection has ever been claimed to exist among these apparently disparate changes. Following Lewis and Pedersen, let us examine these word-initial changes in three groups corresponding to those in the data table:

- (1) /s/ simply aspirates to /h/.
- (2) The /s/ disappears and the plosive becomes a spirant, as follows: (a) The /sp/ or /ps/ cluster becomes /f/; (b) where it may have transposed to /ks/, the /sk/ cluster becomes /xw/. (Absent from this group are /st/ and nontransposed /sk/, which are addressed below.)
- (3) The /s/ either aspirates or disappears and the sonant is aspirated, as follows: (a) The /sr/ cluster is aspirated to /hr/; (b) this /hr/ also becomes /fr/ through a development in the mutation system, creating such correspondences as those in the table; (c) the /sl/ cluster becomes the voiceless aspirated lateral /l/ in Welsh, and in Breton and Cornish the /l/ subsequently voices.

There were some other, more minor changes involving the initial /s/ in British, but these were all subsequently undone by other developments. For instance, the /sn/ of Irish snáim 'I swim' first changed to the voiceless aspirated /nh/ and then to the /n/ of Welsh nawf 'swimming'.

Data Table

<u>Irish</u>	<u>Indo-European</u>	<u>British</u>
(1) sam 'summer' sen 'old' sesc 'dry, sterile'	OHG. sumar Lat. senex Av. hišku- 'dry'	W. haf, Co. haf, Br. hañv W. Co. Br. hen W. hysb 'dry, sterile', Br. hesp, hesk
(2)(a) seir 'heel' sion 'foxglove'	Skr. sphurāmi 'I kick, tread' Lat. spionia 'kind of grapevine' Goth. sparwa 'sparrow' Goth. sprautō 'quickly'	W. ffêr 'ankle', OCo. fer 'leg, shin' W. ffion 'foxglove', (MIBr. foennenn 'privet'?) MnCo. frau 'crow', Br. frao W. ffrwst 'haste'
(b) scéith 'act of vomiting' scél 'story'	ON. skíta 'excrete'	W. chwydu 'vomit', MnCo. hwęga, Br. c'houeda W. chwedl, Co. whethl MlW. cy-chwedl, MIBr. que-hezl
(3)(a) sruth 'stream' srón 'nose'	Lith. srutà 'dung water' Skr. srkvan-, srakva- 'corner of the mouth'	W. rhwd W. rhoch 'snore'
(b) sruth 'stream' srón 'nose'	Lith. srutà 'dung water' Skr. srkvan-, srakva- 'corner of the mouth'	W. ffrwd 'stream', OCo. frot, Br. froud W. ffroen 'nostril', MIBr. froan, MnBr. fron
(c) sluag 'host' slemun 'smooth' slat 'rod'	OSl. sluga 'servant' ON. slīm 'slime' OE. lōeþpa 'lathe' (IE. altern. sl:i:l)	W. llu 'host', OCo. luu, MlCo. lu W. llyfn 'smooth', OBr. limn-collin 'lime tree' MIBr. di-leffn 'hard' W. llath 'yard (measure)', Br. laz 'pole'

All of these changes follow the same pattern presented below.

We thus have three groups of changes, the latter two with different changes within the groups. This is as far toward a generalization as traditional phonology has been able to go, for traditional phonology has been bound by the phonemic segment -- a discrete bundle of features roughly identical to the orthographic letter. A more extensive and accurate generalization can be achieved in a dynamic, nonsegmental approach to the problem.

Dynamic Coalescence

We find a means of resolving the sibilant changes in British in a straightforward way within the syllabic frame of dynamic phonology. All of these word-initial changes (and, as will be shown in future treatments, those in medial and final positions as well) can be attributed to a process known as dynamic coalescence, demonstrated in Griffen (1985: chapters 9 and 13 -- see also 1984 and 1981). When the features associated with two syllabic positions are forced into the same syllabic position, they may merge in particular patterns. If the coalescing positions of obstruction are homorganic or if one of the syllabic positions has no definite position of obstruction, then the position of obstruction remains the same and the prosodic features merge to a set degree.

In Welsh this process has been particularly active, as seen in geminate and aspirate provection, the strengthening along the aspirate fortis-lenis scale traditionally seen to occur through the lengthening of the obstruction duration. In geminate provection, when the features of the two syllabic positions are forced into one syllabic position, the homorganic positions of obstruction are realized (perhaps initially as a lengthened articulation), and the obstruction prosodies are merged. For example, given the well-established aspirate fortis-lenis scale in Welsh of [d] - [d̥] - [t] - [θ] from lenis to fortis (see Griffen 1985: chapter 5), when the words gwastad [g^wastad] 'flat' and dir [dir] 'land' (the soft mutation or lenited form of tir [tir]) were combined, they resulted in the innovative word gwastatir [g^wastatir] 'plain'. Similarly, when the Latin litteras 'letter' was borrowed into Welsh, a resyllabication forced the features in the final position of the first syllable and the initial position of the second together, resulting in their dynamic coalescence in the word llythyr [lɛθɪr]. The process that brings about provection in gemination is the combination of the aspirate features from both coalescing syllabic positions. In the aspirate fortis-lenis scale, [t] is a more aspirated [d̥], and [θ] is a more aspirated [t̥] (reverting to segments for illustration, but recognizing that these simply refer to features realized in a syllabic position).

Aspiration is an obstruction prosody without any reference to position of obstruction. If aspiration could be imposed upon a syllabic position already defined by a position of obstruction and a degree of aspiration, then the result would be the coalescence of aspiration and these other features. This would bring about aspirate provection. Indeed, this is what Lewis and Pedersen refer to as coalescence ("The h coalesces with voiced stops and spirants..." -- 1974:18). For example, in the word heb [he:b] 'quoth', the aspiration associated with what is represented traditionally as the segment [h] lacks a definite position of ob-

struction. As such, it is not an obstruction at all, but an obstruction prosody -- we might transcribe the word as [^he:b] or even, following the Greek tradition, as [ɛ:b], attributing the aspirate prosody to the initial portion of the syllabic vowel. When the word ad [a:d] 'again' was combined with heb, the result was ateb [ateb] 'answer', in which the aspiration from the first syllabic position of the second element was combined with the aspiration in the final syllabic position of the first element, resulting in a provection along the fortis-lenis scale.

There is one further aspect of the data that must be addressed to reconcile the various changes in British into a single sound law. As pointed out fourteen years ago at the First LACUS Forum (Griffen 1975), aspiration is a cluster prosody. When aspiration is changed in the initial syllabic position of a word, the change occurs throughout the cluster. For example, in soft mutation Welsh tad [ta:d] 'father' is realized as dad [da:d]. In a word such as tlawd [tɫaud] 'poor', the aspirate level in the initial syllabic position is sufficient to be perceived as voicelessness coarticulated with the lateral position of articulation {l}. The reduction of the aspirate level in soft mutation results in dlawd [dlaud], with the perception of the lower degree of aspiration coarticulated with the dental position {d} and with the perception of voice coarticulated with the lateral position.

We are concerned here with two phenomena well-established in the history of British: (1) Coalescence can change the level of aspiration perceived in a syllabic position; and (2) aspiration acts as a cluster prosody.

Coalescence and the Sibilants in British

With the principles of dynamic coalescence and the cluster prosody in place, what happened to the sibilants in British should be transparent. The only historical change as such was the aspiration of the sibilant, a rather common occurrence, probably resulting from the similarity between the high-frequency energy emission of sibilance and that of aspiration.

The changes in group (1) in our data reflect the simple aspiration of the sibilant. This aspiration occurs for all (nonsyllabic) word-initial sibilants in British -- or at least all that undergo the change (ruling out the usual exceptions and counterexamples that make completely regular sound change so rare -- see especially Jackson 1953:517-21).

The spirantization of the plosives in group (2) is merely a matter of aspirate provection from the aspirate cluster prosody resulting from the historical change of /s/ in the initial syllabic position. Of course, the coalescence of aspiration and the other features in the data is going to result in the perception of frication.

Group (3) is no different at all from group (2). The Welsh /l/ and /r/ that existed outside of clusters were developments from more fortis articulations (see the dynamic analysis in Griffen in press; also Jackson 1953:471-80). /ɬ/ was a fortis articulation of /l/ and /ɬh/ a fortis articulation of /r/, and each fortis articulation could be developed from aspirate provection. Thus, the aspiration of the sibilant would supply the necessary motivation for an aspirate provection no less obvious than that in the previous group.

Since the protective changes brought about by aspiration result from the nature of aspiration as a cluster prosody and as the protective element in aspirate protection, then all of the changes affecting the Indo-European sibilants in British are a single phenomenon -- the change from sibilance to prosodic aspiration. This single change in terms of features in their syllabic array (and not in terms of letters or of discrete phonemic segments or bundles) constitutes the essence of the dynamic sound law.

Coalescence versus Resyllabication

As noted above, /st/ and nontransposed /sk/ did not undergo the change affecting the other sibilants. If these clusters simply resisted the change, the hypothesis proffered here would be dubious, for the dental and dorsal positions of obstruction do not normally resist such change in the British languages. However, the absence of these clusters does not weaken the hypothesis, but rather it strengthens it considerably.

The /st/ and /sk/ clusters avoided aspiration by removing the motivating environment for coalescence. The initial sibilant obstruction was apparently interpreted as syllabic -- dynamically obstructing its own vowel. This vowel was sometimes even perceived as coming before the sibilant, thus overtly breaking up the cluster through resyllabication. Lewis and Pedersen note that "An inorganic vowel has developed in W. before initial st, and this appears in OBr. but did not prevail in that period" (1974:20 -- the same is shown for initial /sk/). Evidently, the sibilant was perceived as syllabic for a long enough period to avoid the change.

An important relic of the period in which coalescence was competing with resyllabication can be found in the correspondence between Irish slat 'rod' and Welsh llath 'rod, yard (measure)', which underwent coalescence, and Welsh yslath 'rod', which underwent resyllabication. (See Jackson 1953:450.)

What resyllabication tells us about the changes noted thus far is of great significance. It reaffirms the analysis of events as indeed involving coalescence -- the forcing together of features from different syllabic positions into a single position -- and the behavior of aspiration as a cluster prosody. Moreover, the tactic of resyllabication has been used throughout the history of Welsh to avoid just this environment. For example, the initial clusters borrowed from Latin have all undergone this change, yielding such correspondences as Latin scola 'school' and Welsh ysgol [esgol] (compare Lewis 1943:17-18). Wherever the sibilant may be syllabic or at least proclitic, this tactic still comes in and out of use, as for example in the traditional Modern Welsh ystryd 'street' and the innovative stryd.

If we now go back and examine the environments that avoided the resyllabication, we find that they are strongly characteristic of clusters. In the dynamic perspective, clustered features occur with as much simultaneity as possible, given the physical constraints of the vocal apparatus. Where coalescence has occurred, we find overwhelming evidence for this simultaneity in the tendency among /sp/ and /sk/ clusters to transpose, for the sibilant and either the labial or the dorsal obstruction occur with such a degree of simultaneity that the speaker cannot tell which (if

either) comes first (a requirement more important in writing than in speaking). In this environment, the sibilance is clearly nonsyllabic, occurs initially within or without a cluster, and is naturally in a position to coalesce upon aspiration.

Given this information, we can more accurately state the dynamic sound law as follows: Initial nonsyllabic sibilance becomes prosodic aspiration in British.

Conclusion

Much work still needs to be done on this dynamic sound law. More data need to be collected, collated, and analyzed, and the phenomenon in initial position must be compared with similar phenomena in medial and final positions. At this point, however, it appears inevitable that all of the pertinent developments of the Indo-European sibilants in British will support what we may term the Law of the Sibilants.

The implications of the Law of the Sibilants will be far-reaching not only in Celtic and British linguistics, but also in historical linguistics in general. An unambiguous demonstration not only that this law exists, but that it is visible only through dynamic analysis will raise questions about the centuries-old tradition of analyzing sound change on the basis of the segmental "letter." As phoneticians have long maintained, features are not bundled in cross-sectional segments. Analyzing sound change through letters, whether orthographically or "autosegmentally," is bound to result in missing many important insights such as the development of the sibilants in British -- insights that at no level of analysis lend themselves to segmentation.

Indo-European studies in particular have relied upon the segmental sound law, as can be seen in Collinge (1985). With the demonstration that a sound law can be invisible to segmentation, the very foundation of Indo-European reconstruction is in doubt. As pointed out in Griffen (1988), dynamic analysis does indeed provide us with a different reconstruction and a different explanation for the development of the Indo-European consonant system than those afforded by segmental analyses. But if a sound law, such as that affecting the sibilants in British, can be visible only through dynamic analysis, then certainly the Indo-European hypothesis derived from this more phonetically-oriented approach to phonological description and analysis should be considered as the more reliable.

These and other implications of the dynamic sound law will be examined more closely as the analysis of the sibilants in British is carried to completion.

REFERENCES

- Collinge, N.E. 1985. The Laws of Indo-European. Amsterdam: Benjamins.
- Griffen, Toby D. 1975. "On Describing the Cluster Prosody." The First LACUS Forum 1974, ed. by A. Makkai and V.B. Makkai, 140-47. Columbia SC: Hornbeam.
- 1981. "Prosodic Alliteration in Cynganedd Poetry." Bulletin of the Board of Celtic Studies 29, 497-503.
- 1984. "Early Welsh Eclipsis." Bulletin of the Board of Celtic Studies 31, 48-59.
- 1985. Aspects of Dynamic Phonology. Amsterdam: Benjamins.
- 1988. Germano-European. Breaking the Sound Law. Carbondale: Southern Illinois University Press.
- in press. "Old Welsh ll and rh," Bulletin of the Board of Celtic Studies.
- Jackson, Kenneth. 1953. Language and History in Early Britain. Edinburgh: University of Edinburgh Press.
- Lewis, Henry. 1943. Yr Efen Ladin yn yr Iaith Gymraeg. Caerdydd: Gwasg Prifysgol Cymru.
- 1946. Datblygiad yr Iaith Gymraeg, rev. ed. Caerdydd: Gwasg Prifysgol Cymru.
- Lewis, Henry, and Holger Pedersen. 1974. Concise Comparative Celtic Grammar, 3rd ed. Göttingen: Vandenhoeck and Ruprecht.
- Morris Jones, John. 1913. A Welsh Grammar. Historical and Comparative. Oxford: Clarendon Press.
- Watkins, T. Arwyn. 1961. Ieithyddiaeth. Agweddu ar Astudio Iaith. Caerdydd: Gwasg Prifysgol Cymru.
- Wright, T. (ed.) 1881. The Historical Works of Giraldus Cambrensis. London: George Bell and Sons.

THE AFFINITY BETWEEN JAPANESE AND KOREAN
A MORPHOLOGICAL COMPARISON BETWEEN JAPANESE TARUKI AND KOREAN TORI
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1. In spite of the fact that many scholars have demonstrated grammatical and lexical similarities between Japanese (J) and Korean (K), such regular phonological corresponding rules as can be found among the Indo-European languages seem to be almost impossible to establish between the two languages. And it is this factor that raises a strong question about the affinity between the two languages. But our inability to establish the phonological correspondence rules between the two languages may be the result of applying a wrong methodology to them, since J and K, being agglutinative languages, are morphologically different from Indo-European languages. And in order to establish phonological correspondence rules for these languages, a different and new approach should be attempted.

If we focus our attention only on the comparison of their morphemes we may be able to eliminate a certain complexity of the morphological structure of these agglutinatives, which complexity might have hindered us from discovering the phonological correspondence rules between the two languages.

With this assumption, in this paper, I would like to discuss the morphological and phonological relationships between J taruki (rafter) and K tori (beam), demonstrating how these correspond with each other though they may seem to be semantically unrelated words.

2. The Old Japanese (OJ) taruki (rafter) consists of two morphemes: taru and a noun suffix -ki, and the Middle Korean (MK) tori (beam) is also bimorphemic: tor and a noun suffix -i. K suffix -i seems to be a reduction of an earlier -ki, just as aki (baby) has lost /k/ and become ai (baby). Examples of the noun suffix -ki will be easily found in Altaic as well as in J, and here I will show some of the latter: koiki (beggar), ane (elder sister), tubaki (saliva), toki (time), etc. Comparing the words given above with the K equivalents: keci (beggar), Enni (elder sister), chim (saliva), ttae (time), you will notice that the Korean forms lack the suffix. When J taruki (rafter) and hari (beam) are compared with K tori (beam) and -kkarae of se-kkarae (rafter), alternate changes of meanings between the two pairs will be clearly observed. The initial se- of se-kkarae (rafter) used to be syE in MK and used to mean the same without the stem. That is, se-kkarae (rafter) is a compound of two different morphemes with the same meaning. Cf. MK syE (rafter) with Mongolian (Mo) yasu (bone; framework), Turkish (T) Cati (framework; skeleton), Manchu (Ma) son (rafter) and OJ sasu (principal rafter).

3. This type of semantic change exists in another example: J kohi (carp) and viwo (fish) versus K kogi(fish) and ingE(carp). The MK form of the latter word riE/ningE (carp) must have been erroneously reconstructed on the knowledge of Chinese ri(carp). There is a similar example in the MK form of puE (Prussian carp), and it is believed that its present form pungE or a dialect form punga retains its original form, as it resembles J funa(id.) more closely.

4. So, the stem of J taruki (rafter) is taru-, and K tori (beam) tor-. I will give some examples of phonetic correspondence between J /ta/ and K /to/, as follows: J tahi(sea bream) corresponds to K tomi(id.), J tati (sword) to K tochli/toskui(ax). J tatakahu(to fight) to K tothu-(to quarrel, struggle), J tateru(to erect) to K toto-(to raise, make higher), etc.

If J and K are descended from the same parent language, and J taruki (rafter) and K tori (beam) cognates, we can reconstruct *tɪr-ki as their prototype (/ɪ/ of the stem shows the amorphous vowel value). The original meanings of the stem seem to be "prop. support: protection, defence."

5. The following seem to be the derivatives from the stem *tɪr (prop. support: protection, defence).

J derivatives:

- 1) tori-de(fort, fortress) cf. Old Turkish (OT) tura(something to shelter behind: fortification: breastwork: fortified town).
- 2) tori-wi(gateway to a Shinto shrine) probably with an original meaning and aim of shutting out evil spirits: noun suffix -wi examples: miyawi(palace), kamowi(lintel), sikiwi(threshold, sill), tutivi (breastwork), unawi(short hob, Dutch cut) etc.
- 3) e-turi (reeds or bamboo framework on the rafters for holding straws for the thatched roof).
- 4) tate(shield: fortress: house).
- 5) siro(castle) cf. Mo cacar/cacir(tent) ? < ca(pref.)+ *tɪr
- 6) nafa-siro(nursery bed for young rice plants) < nafe(young plant) - siro(protected place)
- 7) va-siro(shrine) cf. va-(? pref.) ex.: yakara(family), yagura(tower), vatai(stall, stand; float).
- 8) to(door, shutter; gate) cf. Old K dialect tol/to(castle gate) which appears in Chronicle of Three Nations, Vol. 44: J amado(shutters), tohari(curtain), mado(window), sitomi(latticed shutters) and toboso (door) seem to be derivatives. J mado(window) consists of a prefix ma- and the stem, while the word sitomi(latticed shutters) of three morphemes: si-(prefix)to(stem)-mi(suffix). And toboso(door) can be compared to spoken Manchu defEseŋ(id.).
- 9) va-do(house: hotel) < va(?pref.) + to, yadova(inn, hotel) is a derivative with a suffix -va.

K derivatives:

- 1) tari(leg: bridge) probably with an original meaning of prop. support. cf. OT tirek(pillar); Ma tura(supporting pole in a tent; pillar); Mo tulGaGuri (support: pillar: supporting pole in a tent).
- 2) tɪr-po (crossbeam)
- 3) ur-thari(fence, hedge); in MK ur itself used to mean the same.
- 4) tɪr (garden) cf. MK ptɪr (id.)
- 5) ma-dang(yard, court): Ex. of k pref. ma-: ma-nɪr(garlic) cf. J nira (leek).

- 6) nara(state, country). cf. OJ transcription of Nara平城, 8th century capital of Japan, literally means 'flat castle'. Chinese character 平 can be read /nara-si/ in a Japanese way, and the other character may indicate the meaning of the place name. The original meaning of nara seems to be 'a place fenced in', and it may have developed a meaning of 'walled city' and ultimately the Korean meaning of 'state, nation, country'. Ma dor-gi (inner part, inside; imperial court), Mo do-tur (inside) will be cognates.
- 7) sirra (an early Korean state BC 57 - AD 935. An earlier Chinese transcription can be read /saro/siro/. The same dynasty was called siragi in Japanese with a suffix -ki/gi added.) cf. J siro (castle)
- 8) cas/cae(castle) cf. OJ sasi (castle)
- 9) sirEng(shelf)
- 10) tong(village) cf. saton(relatives by marriage) ? < sa(pref.)+ tong

6. The OJ keta (cross beam, girder) and MK kitong (pillar) also seem to have derived from the same root *tyr (prop. support; protection, defence) as the former seems to be an abridged form of *ke-tana, judging from the description in Sinsen-ikagami dictionary compiled at the end of the 9th century, where the word tana (shelf) is given as its synonym. From this knowledge and from comparing MK kitong (pillar) with the reconstructed word, it can be guessed that OJ keta is an abridged form of *ke-tana, as the initial ke- seems to be a prefix like those found in the words ke-darui (dull, languid), ke-savaka (refreshing), ke-asi (wild, bad), ke-nurusi (lukewarm), ke-duru (to whittle), etc.

It seems that J as well as K prefixes of this kind are amorphous in the vowel values, as we can see in the words ka-yowai(feeble), ki-musume (virgin), ko-sake/ke-zake(rice wine), etc. And this amorphism must have given J and K users a wide range of possibility when they wanted to show very delicate shades of meaning. For example, K norang (yellow) has an isotope nurEng (id.) and some other forms, by whose use a variety of the color can be shown. This vowel amorphousness has contributed to increasing the vocabularies almost unlimitedly, but in return has caused a great complexity in their morphological structure. And our task to recognize their original morphemes has become extremely difficult, since this same vowel amorphism must have influenced and changed the quality of the preceeding consonant, as we will see in such J words as ke-duru (to scrape, to whittle), he-turu (id.), ha-turu (id.), and ho-turu (id.) with a slight change of nuance of meaning among them.

7. Another morphological complexity existing in Japanese, and probably in the Korean language also, is the use of a prefix or suffix, sometimes doubled, sometimes tripled, which also must have been hindering us from discovering the phonological correspondence rules between the two languages. For example, K motakpul and J takibi have the identical meaning of "bonfire", and are cognates. The probable cause that scholars so far have failed to recognize them as cognates is that the initial syllable of K motakpul(bonfire) is quite different from that of J takibi, because of the existence of the prefix mo- in the K word mo-takpul(bonfire). If the initial mo is taken away from K motakpul, their similarities become very clear, as K pul(fire) and J fi(id.) have already been compared by such Japanese scholars as Kurakichi Shiratori and Susumu Ohno.

By comparing MK mokAi/mokoi/mokli(mosquito) with J ka(id.), MK moi(feed) with J we(id.), MK mosicyokae(corbicle) with J sizimi(id.) and K mosae(sand) with J masago(sand), which is believed to consist of ma(pref.)-sa(sand)-go(suf.), the initial syllable mo of the Korean words given above can be recognized as a prefix.

8. I would like to add another example in order to show the importance of the affix study in the Altaic comparative linguistics. J aka(baby) and Ma sargan(woman) do not look like cognates. But with a knowledge of K aka-ssi(girl), there will be no trouble in noticing the existence of a prefix sa-. Ma sadun(relative by marriage), K saton(id.) and J sato(hometown; wife's/bride's parents' home) will be cognates with this prefix. It is also found in such Ma words as sacima(a pastry), sakura(a three legged wooden pothook), saman(shaman) etc. Compare them with J timaki(rice cake wrapped in a leaf), J kura(stand, rest; saddle), K kirma(saddle), vulgar J ama(girl; hussy) and K am(female). Ma ama(father) seems to have had a semantic change into the present meaning when matriarchy changed into patriarchy. cf. Ma mama(grandmother). J omikosi(sacred palanquin) and Mo köske(transportation; cart) are said to be cognates. cf. Shigeo Ozawa, Nihongo no Kokyo wo saguru. The main reason these two words look etymologically irrelevant will be the J omikosi is adorned with two prefixes, o and mi. The stem kosi(palanquin) itself is used independently, or with a single prefix mi- or o-. J omiya(shrine), and omiki(sacred wine) also have two prefixes, but although we say miya and miki, we seldom say o-ya and o-ki in these cases. J omiasi(foot) is also often used in commercialism. J omiotuke(soup) is a rare case of having three prefixes in one word.

9. As I said at the beginning of this paper, the difficulty establishing regular phonological corresponding rules would be eased to a degree by the approach I have tried in this paper.

The reconstructed J and K prototype stem *tVr(prop. support; protection, defence) will also be associated with OT tirek(pillar), and Ma tura(pillar), jergi(rank, grade; floor, story), dere(desk) and Mo siru(flagpole, mast). Such items found in An Etymological Dictionary of Pre-Thirteenth-Century Turkish by Gerard Clauson, as tura(something to shelter behind; breastworks; stockade, fortified village, town, house) and tur-(to stand) will remind us of the derivational relationship between them just as J tate(shield; castle; mansion) and J tatu(to stand) will do the same. And this Turkish evidence will support the reliability of J and K reconstructed prototype stem *tVr, and the cognate relationship between J taruki(rafter) and K tori(beam).

PERSONAL ANTECEDENTS OF RELATIVE CLAUSES*

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I. INTRODUCTION. Among studies of the properties which noun phrase heads or antecedents of relative clauses have, the least well studied is that of discourse person. Relative clause studies like those of Smith (1964), Keenan and Comrie (1977), Lehmann (1979), and Touratier (1980) have focussed on constructions with third person antecedents, as opposed to the discourse persons, speaker and addressee. I suggest here that this is because the discourse persons, speaker and addressee, have been lost as properties of antecedents in English. Synchronically, the loss of discourse person properties represents another crosslinguistic variable associated with relative noun properties besides that noted by Keenan and Comrie. Diachronically, the loss of person as a property of antecedents illustrates a syntactic process of replacement comparable to phonological replacements.

This paper begins by contrasting the usual third person antecedent construction with the kind of speaker/addressee antecedent under discussion and proceeds to illustrate the discourse function of addressee antecedents in the context of prayer invocation (Part II). Part III then deals with problems of person agreement generally outside the discourse genre prayer. It turns out (Part IV) that positing the loss of discourse persons, speaker and addressee, as properties of antecedents explains several apparently disparate phenomena.

II. DISCOURSE ADDRESSEE AS ANTECEDENT. In the modern English relative construction with third person antecedent, the verb of the relative clause agrees in person and number with its antecedent:

1. THIRD PERSON SG: The ROAD that LEADS to the shore is sandy.
2. THIRD PERSON PL: The ROADS that LEAD to the shore are sandy.

In older stages of English, it was not unusual to find the discourse persons, speaker and addressee, as antecedents, also controlling person agreement of the relative verb in the relative clause:

3. SPEAKER: I, who AM your friend, tell you so.
4. ADDRESSEE: For help, I look up to THEE who ART all-powerful.

In (3-4) personal pronouns 'I' and 'thee' control agreement of relative verbs 'am' and 'art'. The relative pronoun 'who' is here neutral as regards person and number.

In older Indo-European (IE) languages a special vocative case marked a proper noun or epithet as second person addressee, not third person, and relative clauses modifying first and second persons were not uncommon. In prayers, for example, the vocative plus an attributive relative clause expressed the discourse function, addressee invocation, where the vocative personal name or epithet was defined by a relative clause. The vocative evoked the deity by name or epithet, and the relative clause defined the deity thus addressed. Typical older IE is Chryses' prayer invocation (*Iliad* A 37) 'Apollo (voc), who guardEST (2s) Chrysa', a type paradigmatic of the older Greek prayer forms in the *Iliad* and *Odyssey* and the Latin prayers of the *Aeneid*:

5. klûthí meú ἄργυρότοξ' hōs Chrúseen ἄμφιβέβηκας
hear-imp me silver-bowed-voc who Chrysa-acc guardest (2s)

'Hear me, O silver-bowed (Apollo), who guardest Chrysa'

In Chryses' prayer the term used to address Apollo, ἄργυρότοξ(e), is in the vocative case and the relative verb, ἄμφιβέβηκας, is second person singular, agreeing in person with the addressee function of ἄργυρότοξ(e). Formally similar is the Latin version of the Lord's Prayer:

6. Pater Noster qui ES in caelis 'Our Father who ART in heaven'

Here the addressee, Pater Noster, is ambiguously nominative or vocative, but its second person reference is clear in that it controls agreement of the second person singular relative verb, es 'art'.

Because the Lord's Prayer is preserved for a period of over 1500 years in IE languages which have a continuous literary tradition and well-known historical and comparative relations, it offers a context for measuring change in the form of the addressee invocation. The older Germanic forms in Old High German (OHG), New High German (NHG: Weizsaecker's 1906 translation), Old English (OE), the Early Modern King James Version (1611), even early 20th century revisions such as the Revised Standard Version retain the relative clause for defining addressee attributes. Typically, the relative verb takes second person agreement with the discourse person, addressee:

7. OHG: Fater unser, thuu thaar BIST in himile
NHG: Unser Vater der du BIST in den Himmeln
OE: Faeder uure þuu þe EART on heofonum
King James: Our Father which ART in heaven
Revised Standard: Our Father, who ART in heaven

Although differences here in the form of the relative expression immediately stand out (King James 'which' and more modern Revised Standard 'who' replace the older personal pronouns thuu and þu 'thou' plus particles, thaar and þe, of OHG thuu thaar, OE þuu þe), these differences only superficially relate to the question as to whether or not the antecedent controls person agreement in the relative clause. Martin Luther's 16th century use of the verbless in dem Himmel to define addressee attributes, however, crucially obviates person agreement:¹

8. Unser Vater in dem Himmel 'Our Father in Heaven'

Like Martin Luther's translation, the NE Bible and the Good News Bible both substitute 'in heaven' for the relative clause:

9. NE Bible, Good News Bible: 'Our Father in Heaven'

One may object here that the data represent stylistic variation, not real change in syntactic form, despite the fact that discourse and pragmatic functions are invariable and the only difference left to vary with formal syntactic differences is chronology. But let us examine speaker and addressee antecedents of relative clauses in discourse functions outside prayer.

III. PERSON AGREEMENT OUTSIDE PRAYER INVOCATION. First and second person as antecedent of relative pronouns have occasioned discussion among the grammarians. It was Curme's (1977 [1931]:230f.) position that, as he phrased it, the relative pronoun agreed in person, number, and gender with its antecedent as in examples (1-4) above. Because Curme viewed the antecedent as the immediately preceding noun phrase, Shakespeare's passage in which the relative verb agrees with the speaker role of antecedent 'man' was for him deviant:

10. I am no orator, as Brutus is, But, as you know me all,
A PLAIN BLUNT MAN, That LOVE my friend.
(Shakespeare, Julius Caesar III ii 221)

Here relative verb 'love' agrees with the speaker role: 'I (a plain blunt man) that LOVE my friend'. But Curme, preferring a third person relative verb form like 'man that LOVES his friend', points to third person relative verb agreement also where the antecedent is first or second person speaker or addressee:

11. To ME, who KNOWS the capacity of human muscle, these men
are a miracle. (Norman Douglas, South Wind, Ch. X)

Relative verb agreement here is with a third person ('he who knows'), not with the first person antecedent ('me/I who know') as might be expected if the relative pronoun and the verb it governed as subject agreed in person with the antecedent.

Similarly, addressee antecedent 'dear Elizabeth' in (12) does not control the person of third person relative verb 'resents':

12. Above all, no compulsion is offered to yourself, DEAR ELIZABETH, who rightly RESENTS anything of the sort.
(Hugh Walpole, Wintersmoon, A.D. 1928)

In neither (11) nor (12) do speaker or addressee antecedent control relative verb agreement. But if the relative pronoun agrees in person and number with its antecedent, what is the basis here of third person agreement? I suggest that the relative pronoun itself has come to have third person value and as such is controlling relative verb agreement independent of its antecedent. In OE, where the relative *þe* was a particle with no person, number, or gender reference of its own, it functioned easily as a variable for person, number, and gender. As long as it lacked person value of its own, the antecedent controlled the person of the relative verb. Curme's examples of third person relative agreement show by contrast that the relative pronoun has ceased to be a variable for person, and taken on a third person value of its own. The discourse person of the antecedent thus no longer controls relative person agreement because the new third person value of the relative pronoun overrides the person of the antecedent.

Jespersen (1964 [1933]:149f. *passim*), in his discussion of relative person agreement, often differed with Curme. His treatment of cleft sentences in particular (1984 [1937]:73-79) illustrates the grammarian's arbitrary decision as to how to deal with change in progress. Unlike Curme, Jespersen argued that the antecedent, not the relative pronoun, rightfully controlled agreement:

13. It's not I that AM marvellous (Jespersen)
It's not I that IS marvellous (Curme)

For modern English the Quirk grammar (1985:1244ff.) does not treat person as a property of relative clauses at all. There modern English relative clauses modify third persons. Only in a note on determination of personal pronouns do Quirk et al. state (1985:352-53) that (with personal pronouns) 'restrictive modification ... is extremely limited', that nonrestrictive modifiers 'tend to have an emotive or rhetorical flavor. They give two examples:

14. WE who HAVE pledged allegiance to the flag ...
YOU, to whom I owe all my happiness, ...

Both are ambiguous with regard to the issue of person agreement in the relative clause; no mention is made of discourse person as a property of antecedents.

What is of interest here is (a) the fact that writers of English have long hesitated over agreement with a discourse person as antecedent, and (b) this hesitation was not confined to prayers, but constituted a more general grammatical treatment of the property of person in relative verb agreement. Visser (1963:90-96) multiplies the examples here many times over with examples from as early as the 6th century. To the extent that our own intuition confirms the unusual character of relative clauses modifying speaker or addressee as antecedent, it would seem clear that the vacillation in person agreement noted by Curme and Jespersen and the emotive or rhetorical value assigned by Quirk to relative modification of personal pronouns exemplifies a Labovian change in progress.

IV. A FORMAL CONDITIONED REPLACEMENT. The question then becomes, what is the precise nature of the change that underlies this confusion concerning agreement between relative pronoun or antecedent and the relative verb when the antecedent is speaker or addressee? I suggest that the confusion, like the replacement of the relative clause in addressee definition of the prayer, is a reflex of the removal of first and second person as properties accessible to relativization. In earlier constructions where the speaker or addressee function of the antecedent controlled relative verb agreement, the relative pronoun clearly served as a variable for person and number. Where the relative verb agrees in person with third person antecedents, the relative pronoun still serves as a variable for number. But does it still lack its own person value? No. In fact it is the conflict between the third person value of the relative pronoun and the first or second person value of speaker or addressee as antecedent that leads modern English speakers to replace the relative clause with another construction.

Discourse contexts where conflict between antecedent agreement and relative pronoun agreement cause the native speaker confusion are of three distinct kinds:

15. Addressee definition in the prayer invocation:
'Our Father who art in heaven' beside
'Our Father who is in heaven'
16. Cleft sentences like:
'It is I who am your friend' beside
'It is I who is your friend'
17. Simple declaratives like:
'I, who am your friend, tell you so' beside
'I who is your friend tell you so'.

All three present uncomfortable choices for the speaker of modern English, choices that are nicely solved by three different replacements for the speaker/addressee antecedent construction.

As already noted, the relative clause defining the addressee in the prayer invocation is most naturally replaced by apposition:

18. Our Father WHO ART in heaven => Our Father in heaven²

The impersonal 'it is' of cleft sentences by contrast is replaced by a personal sentence and insertion of impersonal 'one' as antecedent of the relative pronoun:

19. It is I WHO AM your friend. =>
I am THE ONE WHO IS your friend.

In simple declarative sentences a formally coordinate topic clause followed by a final (resultant) clause paraphrases the problematic relative modification of first and second person antecedents:

20. I, WHO AM your friend, tell you so. =>
I am your friend, AND I tell you so.

The formal changes in question thus constitute a conditioned syntactic replacement. Three different constructions, each conditioned by a different discourse context, replace the relative clause modifying a first or second person:

21. Apposition replaces the relative clause expressing addressee definition in prayers. (See note 2.)
22. Antecedent 'one' replaces the discourse person as antecedent in cleft constructions.
23. Syntactically coordinate topic clause followed by final (result) clause replaces the relative clause modifying first or second antecedents of simple declarative sentences.

These replacements result from the removal of person as a property of antecedents of relative clauses and the instatement of third person as a value of relative pronouns.

V. CONCLUSION. The archaic nature of relative clauses modifying the addressee in prayer invocation, encouraged by Ferguson's (1976) suggestion that the relative clause in the invocation of the Lutheran collect constituted an archaism, led me to study the syntactic forms that the discourse function, addressee definition, might take. Further investigation of speaker and addressee as antecedents in relative constructions of other discourse contexts led me to the question of the meaning of person agreement in relative clauses. I conclude here that the discourse persons, speaker and addressee, have ceased to be properties which control relative verb agreement.

Reinforcing the removal of discourse person as a property of relative clauses, the relative pronoun ceased to function as a variable for person and took on its own person value, third person. As a result of such changes in the grammar of person, formal syntactic mechanisms for expressing discourse functions involving speaker and addressee changed. Discourse functions, addressee definition, the cleft demonstrative function, and the declarative attributes of speaker and addressee ceased to be expressed by relative clauses.

What this study has not solved, among other things, are questions as to what extent languages which preserve the vocative case to mark addressee also preserve relative clauses as a form for expressing speaker and addressee definition; or, what relation subject prominence as opposed to topic prominence might bear to speaker and addressee as properties accessible to relativization.

NOTES

*This paper is part of more general work on older Indo-European prayer structure and relative clause structures in the larger discourse context. Related studies have dealt with older IE examples of prayer, not only the prayer invocation, but also the request form; and with the hypotactic/paratactic character of IE relative clauses and Hittite syntax in particular.

1. In the discussion at the LACUS Forum questions arose that bore on data which, in the interests of time, had been omitted. One had to do with differences between the Latin Vulgate translation tradition and the Koine Greek tradition, on which the Gothic certainly was based:

Latin: Pater Noster QUI ES in caelis
 Koine: Pater heemōon HO ēn tōis ouranois
 Gothic: Atta unsar />U in himinam

Instead of relative qui plus second person 'be' es, the Koine used the ambiguous definite article/relative form ho without a form for 'be' and Gothic substituted the pronominal þu 'thou', also omitting present tense 'be' form, as was common in older IE. It is likely, however, that Martin Luther's translation reflects the vernacular better than the NHG version, as his purpose was to make the scripture more generally available. Certainly the New English Bible and Good News translations reflect modern idiomatic English usage. Ferguson (1976:105f.) noted a similar suppression of second person antecedent constructions in the Lutheran collect, independent of translation tradition. There an independent declarative replaces the older relative construction (106): 'Lord, our God, you walk before us ...' for earlier relative constructions: '(Let us pray to the) Lord, our God, who walks/walkest before us ...'

2. Is 'in heaven' an appositive? It contrasts with clearly modifying 'heavenly' in 'Our heavenly Father', and, where the relative verb is not 'be', the reduced result is clearly appositive: 'Apollo, guard/protector of Chrysa' <= 'Apollo, who guardest Chrysa'. Proper names are noun phrases with unique reference and a definiteness value that admits only nonrestrictive (appositive) relative clauses (Smith 1964). To the extent that personal pronouns also reflect unique reference, they too should admit only appositive attribution. Certainly it would be semantically anomalous for 'in heaven' here to have a restrictive (non-appositive) value. Failing a more detailed investigation of appositive and restrictive attribution of the sort which Touratier's (1980:277ff.) study of the nature of relative attribution raises, also with reference to personal pronouns, I term this 'apposition'.

REFERENCES

- Curme, George O. 1977 [1931]. A Grammar of the English Language. Vol II: Syntax. Essex, Ct.: Verbatim.
- Ferguson, Charles. 1976. "The collect as a form of discourse". Language in Religious Practice, ed. by W. J. Samarin, 101-9. Series in Sociolinguistics. Rowley, MA.: Newbury.
- Jespersen, Otto. 1964 [1933]. Essentials of English Grammar. Alabama Linguistic and Philological Series I. University, Ala.: University of Alabama Press.
- Jespersen, Otto. 1984 [1937]. Analytic Syntax. Chicago: UP.
- Keenan, Edward L., and Bernard Comrie. 1977. "Noun phrase accessibility and universal grammar". LI 8.63-99.
- Lehmann, Christian. 1979. Der Relativsatz. Typologie seiner Strukturen. Arbeiten des Kölner Universalien-Projekts 36.
- Quirk, Randolph, et al. 1985. A Comprehensive Grammar of English. With an Index by David Crystal. NY: Longman.
- Smith, Carlotta. 1964. "Determiners and relative clauses in a generative grammar of English". Language 40.37-52.
- Touratier, Christian. 1980. La relative. Essai de Théorie syntaxique. SLP, Collection Linguistique 72.
- Visser, Frederic Th. 1963. An Historical Syntax of the English Language. Part One. Leiden: Brill.

THE DECIPHERMENT OF THE JURCHEN
LANGUAGE RECONSIDERED
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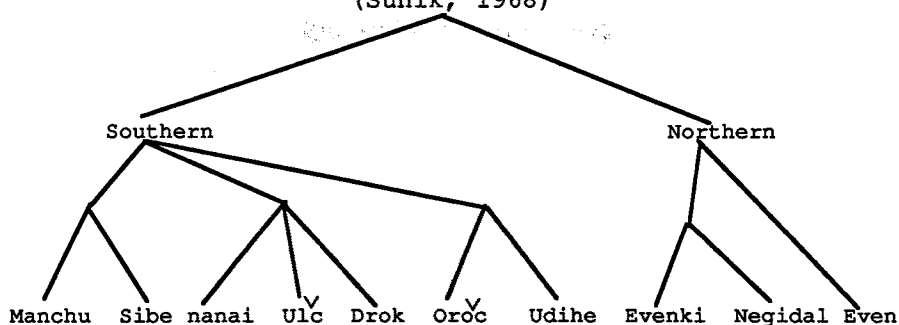
The decipherment of Jurchen, the oldest documented Tungus language, was begun by Wilhelm Grube in his "Note préliminaire sur la langue et l'écriture Jou-tchen" (1894), followed by Die Sprache und Schrift der Jücen (1896). Grube's work was then revised and supplemented by Lajos Ligeti in "Note préliminaire sur le déchiffrement des 'petits caractères' joutchen" (1953) and "Les inscriptions djurtchen de Tyr. La formule Om mani padme hum" (1961). The working hypothesis of both scholars was that Jurchen was a Southern Tungus language close to Manchu. Although Jurchen and Manchu share a number of phonetic correspondences, many other cognates exist between Jurchen and the Northern Tungus languages, Evenki, Solon, Negidal.

The documentation for Jurchen, the Hua-i i-yü, was first compiled in 1407, and known as the "with-script series." A second copy was compiled about 200 years later, called the "without-script series." These two versions of the Hua-i i-yü Sino-Jurchen Glossary, together with the works of Grube and Ligeti, were the basis of two doctoral dissertations; the first by Gisaburo Kiyose (1977), the second by Dorji, later co-authored with Hessig (1983). This paper will compare the Jurchen reconstructions by Kiyose and Dorji and Hessig and evaluate their validity. Drawing on data from other Tungus languages, the position of Jurchen in terms of the wave-theory will be discussed. Finally, evidence will be presented to the effect that the language represented in the two versions of the Hua-i i-yü comprises two dialects of Jurchen, not two linguistic stages of the same dialect as proposed by Kiyose (op. cit.).

Jurchen (Chinese 'Nüchen') is commonly called a Southern Tungus language. As a whole the Tungus languages of the Soviet Union total about 30,000 speakers. Statistics for those living in China are hard to interpret because ethnic and linguistic distinctions are not clear.¹

Figure 1 is a typical family-tree diagram for Tungus. Jurchen is not included because scholars do not agree as to whether Jurchen is an older stage of Manchu or whether the two existed contemporaneously.

Figure 1. Tungus family tree
(Sunik, 1968)



The phonological basis for the Northern-Southern division consists of five features (see Poppe 1965:25), whereas Doerfer's dialect classification uses twice as many (1978:1-26). But upon closer examination, this binary division collapses.

Table 1 gives correspondences for two languages from each branch, using three phonological criteria: palatalization, medial /g/, fricativization. One can see that Oroquen --not to be confused with Oroki -- shows the greatest contrasts by having initial /d/ and medial /g/. In (7), *p > h/#___ is an historical change shared by a Northern language (Evenki) and a Southern language (Hezhen). The change *d > j/#___ is common to Manchu and Hezhen (Southern), as well as Evenki (Northern).

Table 1. Phonological basis of Tungus classification (*transcription differs for each source) 2

Southern Northern criterion

Ma.	Hz.	Oroquen	Evenki	<u>palatalization</u>
1. [∇] jalu	[∇] dzalum	dalū	[∇] dzalu	'full'
2. [∇] jafa	[∇] dzafa	dappee-	[∇] dzava-	'to seize'
3. [∇] jakun	[∇] dziak'o	[∇] jakpu	[∇] dzapkun	'eight'
<u>medial -g-</u>				
4. [∇] juwari	[∇] cua	dugani	[∇] juga	'summer'
5. tuwari	t'ua	tuge	tuge	'winter'
<u>fricativization</u>				
6. buraki	purengk'i	puktaa	--	'dust'
7. femu	hemu	pemu	hömun	'lip'

The decipherment of Jurchen, by Grube (1896), depended largely on the abundant vocabularies for Manchu. Without sufficient lexicography for other Tungus languages, the longitudinal comparison between Manchu and Jurchen caused scholars to exaggerate the resemblances.

One of the reasons for assuming that Jurchen is Old-Manchu is that the Jurchen documents are older, a theory held by Harlez (1888), Grube (1896), Comrie (1981). A competing theory holds that both Manchu and Jurchen spring from a common source.³ Other scholars concede that either theory is plausible to explain the resemblances.⁴ Hence, the statement that Jurchen is a Southern Tungus language close to Manchu is a carryover from nineteenth century scholarship.

It will be shown that 1) Jurchen and Manchu were part of a dialectal continuum, and 2) latitudinal comparison reveals cognates of greater phonetic similarity between Jurchen and Northern Tungus languages than was previously thought.

The Tungus people which founded the Chin Dynasty in China (1115-01234) were the Jurchen. They based their written language on the Chinese system of ideograms and phonograms, as did the Khitan. Documents from this period consist mainly of stone inscriptions. Decipherment, then, requires reconstruction of Chinese phonology from the Chin and Ming Dynasties and comparative vocabularies from other Tungus languages.⁵

Following the brief Mongol rule, the Ming Dynasty was established (1368-1644). Not until 1636 was the name "Manchu" adopted, replacing "Jurchen". The ruler Houang-t'ai-ki then ordered all Chin documents to be renamed "Manchu". However, the Jurchen language continued to be taught at the College of Interpreters and the Bureau of Translators used it until 1658.⁶

A glossary for teaching Jurchen, the Hua-i i-yü, was compiled by the Ming. The earlier edition (1407) is called "with-script" series because it included the native Jurchen script, while the later version (1644) -- called the "without-script" series -- did not.⁷

In Table 2 below the "with-script" series is illustrated. Notice that in the first example both Jurchen and the Chinese translations are ideograms, whereas in the second example two Jurchen phonograms are translated by one Chinese ideogram. The second column of the Hua-i i-yü was a pronunciation guide for native Chinese-speakers. The asterisk indicates the reconstructed Ming pronunciation of Chinese.

Table 2. Organization of the Sino-Jurchen Glossary⁸

Entry #	Jurchen Script	Chinese Transcription	Translation
2 1	𐰇	脱委 *t'uo.uei	火 'fire'
7 6	𐰇𐰏	秃厄 *t'u.ej	冬 'winter'

The reconstructions of Dorji and Hessig (1983) are *tuwei* 'fire' and *tunge* 'winter'. But Kiyose's (1977) are identical to the Manchu cognates: *tuwe* 'fire', *tuwe* 'winter'. Although the presence or absence of medial /g/ is a classificatory distinction which divides Northern and Southern Tungus, Kiyose's decipherment of 'winter' is not justifiable on the basis of Manchu. In other words, one cannot argue that because Jurchen is a Southern Tungus language it cannot have an intervocalic /g/. Nor can one argue that Dorji and Hessig's two decipherments are inconsistent because, like the Northern Tungus cognates, they have intervocalic /g/ in both words.

Most, if not all, Tungus classifications fail to take into account consonant and syllabic metathesis as a variational feature. What Kiyose interpreted as scribal errors are likely to be genuine phonological variants. Compare Manchu *dobori* 'night' and Hezhen *tolopu id.*; Manchu *jadgan* 'pine-tree' and Nanai *jadgan, id.*⁹

In Kiyose we read footnote #686 (1977:135): "The order of the first two characters might be inverted. If so, this word should be **dinjiku*. Cf. Ma. *dei-ji* 'to burn'". But the Evenki cognate *džagdām id.* gives us reason to believe that the Jurchen form *jidinku id.* is not a scribal error. Regrettably, there is no other cognate available to help us decide if in fact #557 **bodihun* 'coverlet' is also a scribal error. Only the Manchu word *jibehun id.* allows Kiyose to make this assumption, changing the Jurchen form to **dibohun*.

Although Dorji and Hessig provide cognates from at least six Tungus language to aid in the decipherment, they would have done better by making a detailed study of the ways that Tungus languages differ in their distribution of phonemes. Such information would have also benefited Kiyose. Instead, their overreliance on Manchu caused them to discount phonetic clues in the Ming Chinese transcription.

An excellent example is #163 'fish', deciphered as **liwaha* in the "with-script" version of the Hua-i i-yü. In a footnote (1977:106ff), Kiyose suggests an alternate decipherment of **limaha id.* which is closer to the Manchu *nimaha id.* Dorji and Hessig (1983:103) even accept this alternate of Kiyose's. However, we find consonantal alternation in Manchu *wa-* 'kill' and Lamut *ma-* *id.*¹⁰

In the "without-script" version, we find another form nimaha 'fish'. Because this second variant was documented some 200 years after the first, Kiyose proposes in the same footnote that an historical sound change is involved *limaha > nimaha. Once again comparative data indicates that /l~n/ is characteristic of differences in phonemic distribution among Tungus languages in general, not necessarily a sound change in Jurchen, e.g., Orochi namu 'sea', Evenki lamu id.¹¹

The steles in Jurchen script found near the Amur river, the "Tyr inscriptions", were deciphered by Ligeti (1961) and others. These linguistic fragments represent Ming Jurchen (1413). These were compared with cognates from older steles dating from the XII century in order to hypothesize some sound changes: 1) [l,r] > 0/___[^V], 2) [n] > [g]/#___, 3) [p] > [f]/V_V (see Table 3).

Table 3. XII Century versus XV Century Forms
of Jurchen
(Ligeti 1961:226-227)

Chin	Ming	
*mül ^V cen >	mu ^V cen	'dish'
*ngala >	gala	'hand'
*mapa >	mafa	'ancestor'

Despite the antiquity of some steles, comparative data from the modern Tungus languages cause us to wonder whether the examples above represent two stages of the same language.¹² Manchu, which was first recorded in the sixteenth century, has cognates identical in phonetic shape to the Ming Jurchen of words (ca. XIV century). But modern Nanai has cognates which are phonetically identical to Chin Jurchen, despite the fact that Nanai was recorded seven centuries later.

Jurchen-language researchers seem to take for granted that Jurchen was a unified idiom, and that all Tungus tribes during the Chin Dynasty were obliged to make use of Jurchen for written communication rather than their regional language. We will recall that the local princes of India inscribed monuments in their regional languages, using the same devanagari script -- this is the basis of our Middle Indic reconstructions. Why,

then must we assume that a semi-autonomous Tungus chieftain inscribed a stele in the dialect of another tribe living hundreds of miles away?

On the one hand, there are phonetic correspondences for entries in the two series of the Hua-i i-yü; on the other hand, forms from the inscriptions of XII, and XIII century steles show correspondences with entries in the Hua-i i-yü. But the postulation of sound change to explain the correspondences accomplishes little more than support the otherwise insupportable hypothesis that Jurchen was a unified idiom. I propose that the languages known as Jurchen, Manchu, and Nanai constituted a dialect area extending from the Great Wall along the Amur river to its source inside Siberia (i.e., the site of the "Tyr inscription").¹³ This is the traditional homeland of the Southern Tungus, mentioned in Chinese chronicles as early as 300 A.D. (Gibert 1934:895).¹⁴

To assume that Jurchen was a language separate from Manchu and Nanai is to impose an artificial problem on the linguist. Table 4 shows the greater similarity between Manchu and the language known as Jurchen, as recorded in the without-script version of the Hua-i i-yü. The examples are from Kiyose (1977). His citations from the without-script series are in footnote form only. Therefore, a more extensive comparison of the two series remains to be done to obtain a better idea of the dialect variation in Jurchen. Dorji and Hessig (1983) do not consider both series.

Table 4. Evidence of Dialect Variation in Jurchen

Entry #	with-script	without-script	Manchu	
017	tamagi	tarmagi	talman	'fog'
131	heke	henke	hengke	'melon'
160	miyehe	niyehe	niyehe	'duck'
163	liwaha	nimha	nimaha	'fish'
Consonantal (obstruents)				
705	asuwi	aku	akū	'non-existent'
440	gajaru	gaisu	gaisu	'to get, require'
Voicing				
020	dulhun	tulgu	tulhun	'shade'
Vocalic Differences				
056	hi ^ŷ i	huti	huti	'well'
506	mei ^ŷ jilen	mu ^ŷ jile	mu ^ŷ jilen	'heart'
444	fan ^ŷ jumai	foni-	fon ^ŷ ji	'to ask'
Metathesis				
153	doribi	?	dobiri	'fox'
078	dorowo	dobori	dobori	'night'
557	bodihun	dibohun	ŷibehun	'coverlet'
Lexical				
063	fundur	yafa	yafan	'garden'
592	fanti	ŷulerge	ŷulergi	'south'
121	fondo mo	hu ^ŷ siya mo	hū ^ŷ siha moo	'chestnut tree'
193	sogiyan ^ŷ singe	solohi	solohi	'weasel'
560	giyuwan ^ŷ ji	doko	doko	'silk'
578	sangiyan sele	toholo	toholon	'tin'
Initial consonants				
528	isgun	misu	misun	'soy'
551	hadu	adu	adu	'dress'

As to the question of whether Jurchen is Old-Manchu, recent work on Mongolian loan words into Tungus is instructive. Two loans from Ancient Mongolian are found in both Ming Jurchen and Manchu, i.e., Jur. tobohon '15', Ma. tofohon id. < A.Mo. *taban 'five'; Jur. hefuli 'belly', Ma. hefeli id. < A.Mo. *kebeli 'belly'.¹⁵ If Manchu were in fact the historical continuation of Jurchen, the Jurchen 'belly' should be **hebeli. Fricativization of intervocalic /b/ is a rule of Manchu historical phonology. Furthermore, since the two loan words are from the same stage of Mongolian, Jur. hefuli 'belly' must be a borrowing from Manchu (i.e., A.Mo > Ma. > Jur.).

The major problem with this argument is in the quantity of supporting evidence. There are other Mongolian loans found in both Jurchen and Manchu, but not enough with consonants in the same environment (e.g., intervocalic /b/ and /f/). Among the native Tungus lexical stock we find Jur. tuwehe 'fruit', Ma. tubihe id.; Jur. samuha 'earmuffs', Ma. sabtun id.¹⁶

Can we reasonably propose these phonetic correspondences represent sound changes from Jurchen to Manchu? Rather than insist that Jurchen is an older form of Manchu, suffice it to say that the correspondences reflect a genetic relationship of two contemporaneous dialects which, together with the language(s) of the various "Jurchen" inscriptions (e.g., Nanai), constituted what can be loosely termed Proto-Southern Tungus.

Finally, we come to the question of how to describe the degree of relatedness between Jurchen and Manchu. The key phrase that "Jurchen is a Southern Tungus language close to Manchu" persists in the literature even the XX century. Because scholars like Harlez (1888) and Grube (1896) restricted the scope of comparison to Manchu, the similarities appear overwhelming, while the contrasts go unnoticed. Table 5 is intended to highlight the contrasts between Jurchen and Manchu. In terms of the Wellentheorie of linguistic relationship, we may make the following statement: Jurchen is closer to Evenki and Solon than it is to Negidal (three Northern Tungus languages), while being still closer to Orochi, Manchu and Nanai than it is to Olcha and Udihe (Southern Tungus). The data in Tables 1 and 5 attest to the sloppiness of the Northern-Southern classification in a manner analogous to the centum-satem division of Indo-European.

Table 5
The Affinity of Jurchen to Northern Tungus¹⁷

abbreviations: Evenki (Ev.), Solon (So.), Negidal (Neg.), Olcha (Or.), Nanai = Goldi (Go.).

Entry #	Language(s)	Jurchen	Manchu	
060	Or. tipa	tifa	ᠴifahan	'mud'
078	Ev., Neg. dolboni; Ol., Go.	dorowo dolbo	dobori	'night'
154	Ev. syru	ṣirha	iren	'buck'
	Go. siru			
158	Ev. sikan	ṣiṣihei	ṣṣiṣi	'sparrow'
282	Ev., Neg. amin	amin	ama	'father'
291	So. nühün	niehun	non	'younger sister'
400	Or. tindaui	tindamai	sindambi	'to dismiss'
515	Ev. niruktö	fu-nirhei		'hair'
686	Ev. dzägdäm	ḡidinku-	deiḡi-	'to burn'
705	Ev., So. äsin	asui	akū	'non- existent'
710	Ev., So. esin	ṣesin	akū	'not'

In conclusion, I agree that Kiyosi's decipherment of Jurchen (1977) is an invaluable contribution to Tungus studies. Dorji and Hessig (1983) took issue with much of Kiyose's decipherment, in some cases justifying a different decipherment with comparative Tungus isoglosses; other times no supporting evidence is presented. Since the work was printed in Chinese as a limited edition, its importance to Jurchen and Tungus research cannot be adequately appraised.

The purpose of this paper has been to improve those areas which Kiyose and Dorji and Hessig took for granted or failed to investigate more thoroughly; namely, 1) the shortcomings of the Northern-Southern Tungus classification, 2) identification of the language of the Jurchen inscriptions, 3) Jurchen's historical relationship to Manchu, and 4) the affinity of Jurchen to the other Tungus languages.

FOOTNOTES

1. Tungus speakers in China estimated at 100,000 (see Ramsey 1987:213-216; Grimes 1984:369-373).

2. Isoglosses for Manchu, Hezhen, Evenki from Dorji and Hessig (1983), Oroquen from Ikegami (1980).

3. Lacouperie (1889), Ligeti (1953), Doerfer (1978), Kazar (1983).

4. Benzing (1965), Poppe (1960), Kiyose (1977), Dorji and Hessig (1983). Poppe (1979:31) is ambiguous in saying that Manchu "inherited" Mongolian numerals from Jurchen (p. 30).

5. See Kiyose (1977:28-40).

6. Summarized from Gibert (1934:347-384).

7. *ibid.*

8. Ming Chinese forms are from Kiyose *op. cit.*

9. Hezhen example from Dorji and Hessig *op. cit.*, Nanaï from Sinor (1975:251).

10. Isoglosses from Doerfer *op. cit.*

11. See Sinor *op. cit.* p. 250 for more comparative data.

12. Kiyose *op. cit.* pp. 23-25 lists steles dated as early as 1116 A.D. and 1210 A.D.

13. Ligeti (1953:221) is ambiguous in his explanation of the similarities between Jurchen and other Tungus languages: "A en croire le témoignage indirect des textes chinois, à cette époque le joutchen devait embrasser pratiquement, sous uniforme quelconque, tous les dialects modernes de la branche Méridionale de la famille des langues toungouses, donc le mantchou, nanaï, samar, oltcha, orok, orotche."

14. See Ramsey *op. cit.* p. 213 for a more detailed geographical account.

15. Rozycki (1983:146-290); for Mongolian numerals in Jurchen see Poppe (1979), Miller (1975), Laufer (1921).

16. Manchu reflects the common Tungus word, c.f. Ev. ^Ysēptun 'earmuff', Neg. sēpun id., Orok septun, Nan. sjaptō/sāēftu(n). The Jurchen word may derive from ta verb similar to Ma. ^Ysamtulambi 'to let down the protective earflaps on a hat' (see Norman 1978:257). But the point is that, one is at pains to call /m/ > /b/ an historical rule.

17. Comparative data from Schmidt (1928); Jurchen and Manchu forms are from Kiyose op. cit.

REFERENCES

- Benzing, Johannes. (1965) Die tungusischen Sprachen. Wiesbaden: Franz Steiner Verlag.
- Comrie, Bernard (ed.) (1981) The Languages of the Soviet Union. Cambridge, Mass.: Cambridge University Press.
- Doerfer, Gerard. (1978) "Classification Problems in Tungus," in Tungusica, Gerhard Doerfer and Michael Weiers (eds). Wiesbaden: Otto Harrassowitz, 1-26.
- Dorji and Hessig. (1983) Nü-chen yi yü yen-chiu. Hohhot: Inner Mongolia University Press.
- Gibert, Lucien. (1934) Dictionnaire Historique et Géographique de la Mandchourie. Hong Kong: Imprimerie de la Société des Missions-Etrangères.
- Grimes, Barbara F. (ed.) (1984) Ethnologue: Languages of the World. Tenth edition. Dallas, Texas: Wycliffe Bible Translators.
- Grube, Wilhelm. (1894) "Note préliminaire sur la langue et l'écriture Jou-tchen," T'oung Pao I: 5:334-40.
- _____. (1896) Die Sprache und Schrift der Jucen. Leipzig.
- Harlez, Charles de. (1888) "Niu-tchis et Mandchous, rapports d'origine et de langage, Journal Asiatique VIII: XI, 220-49.
- Ikegami, Jiro. (1980) Research Papers on the Language and Culture of the Uiltas (Oroks) No. 2: An Uilta Basic Vocabulary. Sapporo, Japan.
- Kiyose, Giasaburo N. (1977) A Study of the Jurchen Language and Script. Kyoto, Japan: Horitsubunka-sha Co., Ltd.
- Lacouperie, Terrie de. (1889) "The Djurtchen of Manchuria: Their Name, Language and Literature," Journal of the Royal Asiatic Society XXI: 433-60.

Laufer, Berthold. (1921) "Jurč^Vi and Mongol Numerals, Kőrösi Csoma Archivum I: 112-15.

Ligeti, Lajos. (1953) "Note préliminaire sur le déchiffrement des petits caracteres' joutchen'," Acta Orientalia Hungarica III: 2: 211-28.

_____. (1961) "Les inscriptions djurtchen de Tyr. La formule Om mani padme hum," Acta Orientalia Hungarica XII: 1-3: 5-26.

_____. (1960) "Les anciens elements mongols dans le mandchou," Acta Orientalia Hungarica X: 3: 231-48.

Miller, Roy A. (1975) "Notes on the Zurc^Ven numerals for the teens," Ural-Altaische Jahrbücher XLVII: 145-53.

Norman, Jerry. (1978) A Concise Manchu-English Lexicon. Seattle & London: University of Washington Press.

Poppe, Nikolas. (1960) Vergleichende Grammatik der Altaischen Sprachen, Teil 1, Vergleichende Lautlehre. Wiesbaden: Otto Harrassowitz.

_____. (1965) Introduction to Altaic Linguistics. Wiesbaden: Otto Harrassowitz.

_____. (1979) "Jurchen and Mongolian," in Studies on Mongolia: Proceedings of the 1st North American Conference on Mongolian Studies, Henry G. Schwarz (ed.). Bellingham: Bellingham Washington Press, pp. 30-7.

Ramsey, S. Robert. (1987) The Languages of China. Princeton: Princeton University Press.

Rozycki, William. (1983) "Mongol Elements in Manchu". Indiana University Ph.D. Dissertation.

Schmidt, P. (1928) "The Language of the Oroches," Acta Universitatis Latviensis 17, Riga.

Sinor, Denis. (1975) "Uralo-Tungus Lexical Correspondences," in Researches in Altaic Languages, L. Ligeti (ed.), pp. 245-65.

Sunik, O.P. (1968) "Mongol'skie, tunguso-mancurskie i paleoaziatskie jazyki," in Jazyki Narodov SSSR, Vol. 5. Leningrad: Nauka.

ISTHMUS ZAPOTEC LOANS

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0. Introduction. Any two languages in contact are bound to influence each other in various ways--adding new phonemes as well as lexical items. The languages of Mexico are, of course, no exception. Mexican Spanish phonology is enriched by Aztec phonemes such as /ts/, /tʃ/ and /ʃ/ (e.g., Azcapotzalco, Iztaccihuatl, and Calle Xotepingo (ʃotepingo), and the /ʃ/ of English (shampoo). And many Indian languages of Mexico have added Spanish phonemes as well as lexical items to their inventories.

Probably the Mexican Indian languages could be placed on a continuum as regards their acceptance of Spanish words. Highland Mazatec would no doubt be on the far left, with almost zero interference. The Spanish word ciento 'hundred' upset the Mazatec phonemic system by adding a /t/-/d/ contrast. (In native words /t/ has an allophone [d] following /n/.) But Spanish words are very uncommon in the language. On the other hand, the Zapotec languages are well toward the right end of the continuum, with wide open doors for receiving new sounds, words, and phrases.

Within a given language, however, speakers may also vary as to individual preference. A few years ago a commission was appointed to free Mexican Spanish of English influence, though without great success. The same battle is present in Isthmus Zapotec,¹ with the recent development of greater interest in purism. Certain writers will use a very vivid imagination or dig into history, using written materials from other Zapotec languages, and make up phrases to replace well-established Spanish loan words. For example, the title of a recently-published reading book for adults is:

gui'chi liibilisaa diidxaza ...

which translates (semi-literally): 'Zapotec paper stuck-together (bound)', to avoid the use of the common loan word libro.

Many speakers, on the other hand, use Spanish words even where native Zapotec words are still in wide use. I once heard a talk in which the speaker admonished his hearers as follows: guni amar nu, cadi guni aborecer nu ('we should love, we should not hate'), using the system common in Zapotec for incorporating Spanish verbs: a combinatory Zapotec verb 'do' with the appropriate aspect prefix and person enclitic surrounding the infinitive form of Spanish. So:

g- 'potential' + uni 'do' + infinitive amar 'love' (or aborecer 'hate') + nu 'first person plural' There are, however, words in Zapotec for both 'love' and 'hate', which are still used by most speakers.

In between these two extremes, there are many Spanish words used normally by "99.44%" of the speakers. I will present a number of these, in various groups according to the type of phonetic and semantic changes and their combination with Zapotec affixes.

First, however, it will be important to mention certain features of the Zapotec phonology which are related to these changes.

Lenis and fortis consonants: In Zapotec, the series of stops and fricatives written with symbols normally considered to represent a voicing contrast are best described as lenis and fortis. The lenis consonants tend to vary between voiced and voiceless, but with a light articulation. These are: b, d, g, z, ž, j. The fortis consonants have a stronger articulation and are always voiceless. These are: p, t, k, s, š, č.

The vowels are the same five as in Spanish: a, e, i, o, u, but the /o/ is much less frequent than the /u/, with the result that many Spanish words are changed from /o/ to /u/. Judging from the reaction of certain speakers, the /o/ of Spanish sounds more like [ɔ] than the /o/ of their own inventory.²

These five vowels occur in three contrastive forms: oral (written with a single vowel), checked (written V'), and reduplicated or laryngealized (written with double vowel). Examples: rini 'blood'; bi'ni 'did'; wiini 'little'.

In addition to the segmental phonemes, Zapotec has three contrastive tones, which for practical purposes, I will represent here by symbols in parentheses after the word: (l) for low; (h) for high; (g) for up-glide. Periods between the symbols indicate a syllable break within a word; spaces represent word division. Examples: na be (l g) 'he says'; na be (g g) 'hand'; nabé (h.h) 'very'. In loans introduced in modern times, the tendency is to pronounce the stressed syllable with an upglide tone, and other syllables with low tone. In earlier borrowings, there are variations from this pattern. Stress (marked with acute accent) is contrastive, as seen in the following examples:

ráka (l.l) 'happens', raká (l.g) 'there', bizi (l.l) 'bee', bizé (l.l) 'well'. Laryngealized vowels are always stressed, and for the other two types the most common pattern of stress is on the penultimate syllable. I will mark the stress only on words which do not have this pattern.

1. Some words seem to reflect the history of Spanish phonetics at the time they were introduced into Zapotec. Old Spanish sibilants distinguished three articulations. These are reduced to two in

the loans into Zapotec. There was also a voicing contrast, which in modern Spanish was lost as all sibilants became voiceless. In the loans into Zapotec all sibilants were interpreted as lenis. The frontmost sibilant of Old Spanish became the Zapotec /z/, the alveolar and palatal sibilants became Zapotec /ʒ/. The following are examples:

guzina (l.g.l) 'cocina' ('kitchen')
 aguža' (l.l.h) 'aguja' ('needle')
 žiringa' (l.l.h) 'jeringa' ('syringe')
 žabú (l.h) 'jabón' ('soap')
 žiga (g.l) 'jícara' ('gourd')
 bežu (g.l) 'peso'
 dyuži (g.l) 'Dios' ('God')
 meža' (l.h) 'mesa' ('table')
 miža' (l.h) 'misa' ('mass')
 žandyé (l.h) 'sandía' ('watermelon')

The contrast between voiced and voiceless stops and affricates in Spanish words was also neutralized, all being interpreted as lenis:

bayu' (l.h) from Old Spanish paño 'piece of cloth'
 (modern Spanish pañuelo 'handkerchief')
 bladú' (l.h) 'plato' ('plate')
 buyu' (l.h) 'pollo' ('chicken')
 mbale (g.l) 'compadre' (See section 2)
 badyá' (l.g) 'batea' ('wash tub')
 bangu' (l.h) 'banco' ('small bench')
 migu (g.l) 'mico' ('monkey')
 gamiža' (l.l.h) 'camisa' ('shirt')
 žabizende (l.l.g.l) 'San Vicente' (saint name for the town
 of Juchitán)
 (yoo) deža (l g.l) (casa de) teja ('house of tile')
 žuladi (l.h.l) 'chocolate'
 gužara (l.g.l) 'cuchara' ('spoon')
 gužfw (l.h) 'cuchillo' ('knife')
 ganžu (g.g) 'gancho' ('hook')

Other similar changes are even more irregular:

/t/ changes to /č/:

kwači (g.l) 'cuate' ('twin') (This word has an Aztec origin: coatl, which probably accounts for this irregularity.)

/m/ changes to /b/:

buñega' (l.l.h) 'muñeca de tela' ('cloth doll')

(/m/ is a rare phoneme in Zapotec, and some words which begin with /m/ in Juchitán begin with /mb/ in other towns. For example, ma' (g) 'ya' ('already') is pronounced mba' (g) in various towns.)

A small list of words which seem to come from an early stage of

Spanish have a laryngealized vowel in place of the Spanish oral vowel:

piisu (g.g) 'piso' ('a game')
 rweeda (g.g) 'rueda' ('wheel')
 santyaagu' (l.h.l) from Santiago, for the month of July.

One unique type of change is seen in the forms *pwerta'* (l.h) for 'puerta' and *mula'* (l.h) for 'mula' ('mule')

2. Changes due to requirements of the phonological structure of Zapotec.

1) Loss of final consonant.

Native Zapotec syllables always end in a vowel (or semivowel *y* or *w*). As a result, the Zapotec speaker tends to drop the Spanish consonants which are final in syllable or word. For example, the names of the days of the week Monday, Tuesday, Wednesday are *lune*, *marte*, *myérkole*, without the final /s/. Other such loans include *lapi* 'lápiz' ('pencil'); *hma* 'más' ('more'); *dede* 'desde' ('from').

The final consonant is conserved, however, in certain words, (especially those with final stress), e.g., *pan* 'bread'; *limón* 'lemon'; *galán* 'good'; *¿i fin* 'qué fin' 'what results?'; *años* 'rice'; *bos* 'voice'; *asul* 'blue'; *señor* 'Mr.'; *pur* 'because of'. Note also the pronunciation of *lección*: ('lesson') *lesyón*, maintaining the final /n/ but with loss of the syllable-final /k/.

2) Loss of a syllable.

Two-syllable sequences of unlike vowels or of /iya/ do not occur in Zapotec. Hence Spanish words including these sequences are reduced by loss of one syllable. Examples:

/iya/ becomes /ya/: *mantekyá* (l.l.h) 'mantequilla' ('butter')
 /óa/ becomes /wá/: *kanwá* (l.h) 'canoa' ('canoe')
 /aé/ becomes /áy/: *maystru* (g.l) 'maestro' ('teacher')
 /eá/ becomes /yá/: *badyá* (l.g) 'batea' ('wash tub')

Other words of three-syllable length have lost the pretonic syllable:

mosa (g.l) 'hermosa' ('beautiful')
nuči' (l.h) 'anoche' ('last night')
male (g.l) 'comadre'
mbale (g.l) 'compadre'
skwela (g.l) 'escuela' ('school')
spehu (g.l) 'espejo' ('mirror')

(The last two words did not lose the whole pretonic syllable because Zapotec has the initial cluster /s/ (or /ʃ/) + stop (/p,t,k/), which is not allowed in Spanish.)

3) Epenthetic /g/.

Zapotec words normally begin with a consonant. The few which always begin with a vowel seem to have a history of initial consonant. For example, the word like 'head' is listed in the 17th century dictionary written by Fray de Córdova as *quique* (/kike/). In modern Isthmus Zapotec, most of the words which are normally pronounced as vowel-initial are considered to be "correctly" pronounced only if they begin with /g/. I have heard young people play a game which goes something like this:

"Give me a word beginning with a"

"a^{jé}"

"No. That's *ga^{jé}*"

As a result, certain loan words which begin with a vowel may end up being pronounced with a /g/ initially, following the principle of "over correction". Examples:

guryá instead of *orilla* ('edge')

ganíw instead of *anillo* ('ring')

gabyón instead of *avión* ('airplane')

I should add, however, that this tendency seems to be disappearing. Many young people today are becoming accustomed to the vowel-initial pronunciation.

3. Irregular changes.

/e/ becomes /i/: *nuči* (l.h) 'anoche' ('last night')

/a/ becomes /e/: *butake* (l.g.l) 'butaca' ('a type of chair')

/f/ becomes /h/: *naboho* (l.g.l) 'bofo, fofó' ('spongy')

/xu/ becomes /f/: *fan* (h) 'Juan' ('John'), *febe* (g.l)

'*jueves*' ('Thursday')⁴

The phrase *bladu sa'mpa* (l.h h.l) may come from the name of the town Atzampa, where the type of pottery to which this word refers is made.

4. Words with semantic changes.

Some words are especially interesting because of limitation, change, or extension of the original (Spanish) meaning. Examples:

niño ('child'): a plastic doll used to represent the child Jesus at Christmas time ('*niño Jesús*')

velu (from *abuelo* 'grandfather'): 'grandfather' or 'old man' (and also for the young people who dress up like an old person and sing in the streets during the week before New Year's.)

mantekyá (from *mantequilla* 'butter'): 'butter' or 'cream'

spehu (from *espejo* 'mirror'): 'mirror' or 'glass'

galán ('gallant, lover'): 'pretty', 'handsome'; 'good';
 'well'; 'pleasant'
 nunka ('never'): 'it's not true'
 seguro (from seguro 'certain, sure'): 'maybe'
 tiru (from tiro 'shot'): 'time, occasion'
 byahe (from viaje 'trip'): 'time, occasion'
 ora (from hora 'hour'): 'hour' or 'when' (conjunction)
 manu (from mano 'hand'): 'a helping hand' (for 'hand' as
 part of the body, the native word na' is used.)
 apena (from apenas, which has two meanings in Spanish:
 'just now' and 'barely', 'with difficulty'). Only the
 second meaning is used in Zapotec.
 dede (from desde 'from'): This word is used in Zapotec to
 mean both 'from' and 'to' in reference to a stretch of
 time or space, e.g., dede iži 'until tomorrow',
 dede rari, dede raká 'from here to there'.
 árbol 'tree' is used in Zapotec only in the phrase árbol
 de Navidad 'Christmas tree'. For all other trees and
 plants, the native word yaga is used.

5. Words incorporated into the Zapotec word structure, with
 Zapotec prefixes.

Currently, there are only four Zapotec words for distinguishing
 colors:

nayaase' (l.l.l) 'black'
 nažiŋá' (l.l.g) 'red'
 naguči (l.l.l) 'yellow'
 nakiči' (l.l.h) 'white'

For the others, Spanish loans are used, but in some cases with the
 addition of the stative prefix na-, as in naberde 'green'. Other
 words to which this prefix is added include the following:

nalisu (l.g.l) (liso 'smooth')
 namono (l.g.l) (mono 'dressed up')
 nawelu (l.g.l) ('elderly') (See section 4)
 naboho (l.h.l) ('bofo, fofo' 'spongy')

The Spanish word codo 'elbow' is borrowed into Zapotec, but with
 the prefix za- 'below' or 'at the foot of': žakodo na' (literally
 'below-elbow arm') means simply 'elbow'.

A Zapotec particle pa (or p-), which has varied usage in native
 phrases or words, also occurs with a few Spanish words, for
 example:

pora 'what hour?' (i.e., 'when?' during the day)
 padé 'where from?' (preposition de)
 padede 'where from?' (preposition desde)

The Spanish preposition *de* is also used with the particle *ru* 'still, yet': *deru* (1.h) 'not until now'.

6. Words without notable changes. Other words of very common use today are used with no change or with only the change of final /o/ to /u/. Examples (with normal Spanish spelling except for the final vowel change): *pobre* 'poor'; *café* 'coffee'; *pantalón* 'pants'; *arete* 'earring'; *taza* 'cup'; *jarra* 'jug'; *falda* 'skirt'; *calle* 'street'; *cine* 'movie'; *guitarra* 'guitar'; *reloj* 'clock'; *carta* 'letter'; *pintura* 'paint'; *chicle* 'chewing gum'; *oro* 'gold'; *vaca* 'cow'; *bolsa* 'bag'; *ajo* 'garlic'; *naranja* 'orange'; *razón* 'reason'; *tienda* 'store'; *cama* 'bed' (of the modern type; the word *luuna* is used for the native type of bed); *caballu* 'horse'; *libru* 'book'; *amigu* 'friend'; *zapatu* 'shoe'; *cuentu* 'story'; *pisu* 'floor'; *carpinteru* 'carpenter'; *caldu* 'soup'; *few* 'ugly'; *listu* 'ready'; *bancu* 'bank'; *banca* 'long bench'; *taxi*; *radio*.

I should not complete this description without making one point clear--that the use of these and other loans varies greatly from speaker to speaker. There are some who bring in Spanish words in place of Zapotec words still in general use. (Compare the illustration using Spanish verb infinitive mentioned in the introduction.)

On the other hand, there are also purists, who reject use of any word which is not native (theoretically, that is, though it is difficult for them to be consistent in their ideal).

The influence in the opposite direction, i.e., Zapotec words incorporated into Mexican Spanish, is of course not as great. Unlike the influence of Nahuatl, there are very few Zapotec loans in Spanish usage. Apart from place names, only four usages have come to my attention:

The Zapotec word *biliwana* (1.1.1.h) is the name for a certain type of beam used in building tile roofs. Monolingual Spanish speakers in the community refer to these beams as *bilihuanas*.

Spanish-speaking communities in the area frequently use the word *byuši* as an adjective or noun referring to something small. It may come from the Zapotec verbal-adjective *nabyuže* (1.1.1) 'small' or from the noun *byuži* (1.h) 'gnat'.

A flowering tree of the Isthmus is called in Zapotec *giriziña* (1.1.g.1). Spanish speakers devoice the /z/ and include the word *quirisiña* in their Spanish conversations.

A fourth form I recently heard is especially interesting. The Zapotec spoken in the Isthmus includes a phrase to describe a certain type of soil which is especially good for plants: *yu* (1) ('earth') *kwe'la* (1.1). Recently in the capital city of Oaxaca, 150 miles from the Isthmus towns, a horticulturist referred to this special kind of earth as *tierra yucuela*.

NOTES

¹From here, I will use the term "Zapotec" without adding the delimiting word "Isthmus", although this is only one of various distinct languages called "Zapotec".

²I remember being corrected various times when I pronounced some person's name, such as Tito. I was told "It's [titu] not [titu]".

³These terms do not have an easy translation in English, since they represent an extended usage of the godfather-godmother system. Both of these words have a possessed form distinct from the common pattern with the prefix *š-*. Compare:

šumale (l.g.1) 'his/her comadre'

šumbale (l.g.1) 'his/her compadre'

⁴In present usage, these words are spoken more in jest than seriously, imitating the speech of elderly people.

THE 'COMPLEXIVE ASPECT' IN OLD WEST GERMANIC

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Ever since the publication of Wilhelm Streitberg's thesis dealing with the theory of verbal aspects in Germanic which appeared in 1891,¹ the question of whether the Germanic languages possess or do not possess a formal aspectual differentiation similar to the one found in the Slavonic languages continues to be argued. Streitberg, among other scholars,² had identified in the semantically empty prefix *ga-* the perfectivizing agent κατ'εξοχήν of the Gothic language. He formulated, therefore, that this Germanic prefix exercised a similar function to the perfectivizing prefixes of the Slavic grammar. Consequently, he stated that the Gothic *ga-*compounded verbal forms expressed the perfective aspect, whereas the unprefixated verbal forms indicated the imperfective aspect. By the term "imperfective" I mean any past event viewed as developing in front of our eyes. It has been called the "lineal," "cursive," or "durative" aspect of the verbal action. In English it is expressed by the progressive forms of the conjugation in the so-called simple past tense; in Spanish,³ Latin and Greek by the imperfect tenses. By the term "perfective" I mean any past event viewed as completed, not only from a temporal, but also from an actional point of view. It is, therefore, a notion somewhat different from the one traditionally associated with the concept of perfective aspect. For this reason it is advisable not to speak of the "perfective" action when dealing with the Germanic and Slavonic prefixed verbal forms. Instead, the term "complexive"⁴ should be used for reasons which will be explained later. Traditionally, however, the perfective aspect has been called the "constative," or "punctual" aspect of the verbal action, that is, the action viewed as "having taken place." In English it is normally expressed by the simple past tense, in Spanish by the preterit, in Greek by the aorist, and in Latin by the perfect tense in its aoristic function.⁵

Comrie in his work *Aspect* made the following comment in a footnote regarding the perfective as-

pect in Germanic: "It is possible that the prefix ga-, as in Gothic, originally denoted, or came to denote in some Germanic languages perfective meaning, but outside of Gothic there is little direct evidence of such a situation..."⁶ The present paper attempts to demonstrate that if one accepts the evidence of formal aspectual differentiation based on the examples found in the Gothic language, then one must also accept such evidence for Old High German (= OHG) and for Anglo-Saxon (=A-S) on the grounds that these West Germanic languages possess the exact same type of sentence structures that have been cited as examples for the existence of aspectual differentiation in Gothic. A comparison of several passages of the New Testament in the Gothic Bible⁷ with its counterparts in the OHG gospel of Tatian⁸ and the A-S gospel of the Corpus Manuscript⁹ will suffice to prove this point:

A) GOTHIC

(1) John 17,12. Than was mith im in thamma, faír-hváu, ik fastaida ins in namin theinamma (ἐτή-pouv).

(2) Luke 2,19. ith Maria alla gafastaida tho waúrda thagkjandei in háirtin seinamma (ουν-ετήπει).

B) OLD HIGH GERMAN

(3) John 17,12 (Tatian 178,4). Mit diu ih uuas mit in, ih hielt sie in thinemo namen (servabam).

(4) Luke 2,19 (Tatian, 6,6). Maria uuárlightho gihielt allu thisu uuort ahtonti in ira herzen (conservabat).

C) ANGLO-SAXON

(5) John 17,12. tha ic wæs mid him ic heold hi on thinum naman (servabam).

(6) Luke 2,19. Maria geheold ealle thas word on hyre heortan smeagende (conservabat).

In example (1) we have the Gothic unprefixated verbal form fastaida which means "I kept" and it matches the unprefixated OHG form hielt in example (3) and also the unprefixated A-S verbal form heold in example (5). In example (2) we find the Gothic ga-compounded verbal form ga-fastaida which means "she kept" and it matches the OHG gi-compounded verbal form gi-hielt in example (4), and also the A-S ge-compounded verbal form ge-heold in example (6).

The unprefixing Gothic form in example (1) translates the Greek imperfect ἐτήρουν, whereas the prefixed Gothic form in example (2) translates the Greek οὐν-compounded verbal form in the imperfect οὐν-ἐτήρει. The unprefixing OHG and A-S verbal forms in examples (3) and (5) respectively render the Latin imperfect servabam, whereas the prefixed OHG and A-S forms in examples (4) and (6) respectively translate the Latin con-compounded verbal form in the imperfect conservabat. Obviously, the old Germanic translators paid heed to the existence of prefixes, since the Greek and Latin particles οὐν and con- respectively were rendered into their corresponding Germanic prefixes ga-/gi-/ge-. However, we will not attempt to discuss here whether or not the Greek or Latin prefix had any perfectivizing function at all.¹⁰ It is only interesting to note that the Germanic scribes were conscious of the presence of these particles even in languages where the function of tenses had, most probably, already overshadowed any kind of perfectivizing function that these prefixes might have had in an earlier stage of the language. More important in this investigation is the fact that we find East and West Germanic prefixed verbal forms alternating with their corresponding unprefixing counterparts in passages where the Greek and Latin original texts do not show such alternation. The following examples will prove this point:

A) GOTHIC

(7) Luke 2,28. jah is andnam ina ana armins seians jah thiuthida guda ... (εὐλόγησεν).

(8) Luke 9,16. nimands than thans fimf hláibans jah twans fiskans, ... gathiuthida ins ... (εὐλόγησεν).

B) OLD HIGH GERMAN

(9) Matthew 12,15 (Tatian, 69,8). inti folgen-tun imo manage, inti heilta sie alle (curavit).

(10) Mark 6,5 (Tatian, 78,6). nibi unmanage un-mahtige anagilegiten hanton giheilta (curavit).

C) ANGLO-SAXON

(11) Matthew 12,15. and him fyligdon mycel mænigeo, and he hælde hig ealle (curavit).

(12) Mark 6,5. buton feawa untrume on-asettum his handum he ge-hælde (curavit).

In examples (7) and (8), the Greek aorist εὐλόγησεν, meaning "he blessed," is rendered one time

by the Gothic unprefixated preterital verbal form thiuthida in example (7) and another time by the Gothic prefixated preterital form ga-thiuthida in example (8). In examples (9), (10), (11) and (12), the same Latin perfect tense form curavit, meaning "he healed," is rendered either by unprefixated or prefixated preterital forms in both, the OHG and the A-S translations. This leads us to question the reason for such alternations in the Germanic languages.

Streitberg had assumed that the Gothic ga-compounded forms of the past expressed the same type of perfective aspect as the one expressed by the Greek aorist. On the other hand, he believed that the Gothic unprefixated verbal forms of the past expressed the same type of imperfective aspect as the one expressed by the Greek imperfect tense. And, indeed, there are plenty of cases where such assumption proves to be correct not only for Gothic, but also for OHG and A-S. In the latter case, the Latin verbal forms in the perfect tense appear rendered in OHG and A-S by the compounded verbal forms of the past, whereas the Latin verbal forms in the imperfect tense appear translated by OHG and A-S unprefixated preterital verbal forms. The following examples will prove this point:

A) GOTHIC

(13) John 13,22. Thanuh sehvun du sis misso thai siponjos, ... (ἐβλεπον).

(14) Luke 15,20. ... nauhthanuh than fairra wisandan gasahv ins atta is jah infeinoda ... (εἶδεν).

B) OLD HIGH GERMAN

(15) Mark 6,20 (Tatian, 79,3). ... inti lustlihho horta inan (audiebat).

(16) John 12,34 (Tatian, 139,9). uuir gihortumes fon theru evvu ... (audivimus).

C) ANGLO-SAXON

(17) Mark 6,20. ... And he luflice him hyrde (audiebat).

(18) John 12,34. we gehyrdon on thore /lage that/ ... (audivimus).

In spite of these examples, the prefixated and unprefixated preterital verbal forms in the Germanic languages do not necessarily render the aorist-type tense and the imperfect tense of the classical lan-

guages respectively, as can be deduced from examples (7), (8), (9), (10), (11) and (12). Before we discuss the basic function of these alternations between the compounded and the uncompounded verbal forms in the Germanic languages, it becomes necessary to mention another weak point in Streitberg's aspectual theory. Streitberg had assumed that the Gothic unprefixated preterital verbal forms expressed the imperfective aspect similar to the unprefixated -type of durative verbs¹¹ in the Slavonic languages. The fact is, however, that these Germanic unprefixated verbal forms are neutral from an aspectual point of view. This can be shown by the following New High German (=NHG) example:

(19) Wir stiegen den Berg (hinauf).

This sentence means two things: (a) "We were climbing up the mountain," which expresses a durative, or imperfective action,¹² and also (b) "We did climb up the mountain." In the latter case we have a non-durative event, that is, a perfective action, if we mean by the term perfective an aoristic-type of event. When we use, however, the compounded verb er-steigen with the NHG prefix er- which has today assumed the function of the older prefix ge-, the action can only be perfective, or more precisely, "complexive," as we can see from the next example:

(20) Wir erstiegen den Berg.

This construction can only mean one thing: "We climbed up the mountain," or more exactly, "We reached the top of the mountain." This prefixed verbal form conveys the exact same meaning as the Slavonic prefixed verbal forms of the past. In NHG just as in the Slavonic languages, these compounded verbal forms indicate that the action has been completed not only from a temporal, but also from an actional point of view. The translation into English of the meaning inherent in these compounded forms can only be achieved through lexical means, that is, with the aid of a periphrasis. The unprefixated verbal form of the past, like in the English sentence: 'We climbed half way up the mountain', states only that our climbing "ceased at a given point in time." However, if we say using a periphrasis: 'We reached the top of the mountain', not only have we ceased the climbing at a given point in time, but we have also achieved the ascension of the mountain, which is the "complete action" of this climbing. The concept inherent in this NHG er-compounded verbal form has, indeed, no correlation in Modern English.¹³ The fact that these

Germanic compounded verbal forms express the perfective aspect can be seen from the fact that they do not allow the notion of duration, as the following NHG example illustrates:

- (21) * Wir er-stiegen den Berg vier Stunden lang.¹⁴
 **We reached the top of the mountain during four hours."

In his book, *Anatomy of the Verb*, Albert Lloyd speaks of the "complexive aspect"¹⁵ when referring to these prefixed verbal forms in the Germanic and Slavonic languages. He points to the fact that there are, in reality, three different verbal aspects:¹⁶ (a) the "cursive," (b) the "punctual" (c) and the "complexive" aspect. The first two aspects are of a paradigmatic nature, that is, they are expressed by two different tenses, whereas the third aspect is of a syntagmatic nature, that is, it is expressed with the aid of a semantically empty prefix. Lloyd means by complexive aspect, the verbal action expressed by the prefixed verbal forms which always indicate a "complete change from one state of actional rest to another different state of actional rest."¹⁷ The NHG verb er-steigen indicates, therefore, that one "has changed from the state of actional rest of being at the bottom (of the mountain) to the other state of actional rest of being on top (of the mountain)." By the same token, if one uses, for instance, another NHG er-compounded verb, such as er-schlagen, it indicates that "one has caused someone to change from the state of actional rest of being alive to the other state of actional rest of being dead," since this verb means "to kill," or "to slay." Nonetheless, the real meaning of NHG er-schlagen, just as its equivalent in Russian u-bit', can only be rendered into English by means of a periphrasis, such as: "to beat up with death as its result." It becomes necessary to point out, however, that although the Germanic languages employed--in the older period more than now--syntagmatic means to express aspectual differentiation, they never developed this system to the degree that we find it in the Slavic grammar.

We now return to the reason for this alternation between the prefixed and the unprefixed verbal forms in the East and West Germanic manuscripts. The translators did undoubtedly recognize the lineal aspect of the imperfect, and the punctual aspect of the aoristic-type of tenses in the classical original texts. They did, consequently, translate these tenses by the unprefixed and prefixed forms of the past respectively. Yet in most cases these scribes followed

their own Sprachgefühl, that is, their own linguistic instincts. The reason for these alternations must be sought in the fact that in a narration not all events are of equal importance. For facts already known, or for background information, the Germanic narrators used the unprefixal verbal forms. However, when they wanted to stress some of the events narrated, they used the complexive aspect. In this manner, the narration could be kept under vivid observation.¹⁰

In example (7), for instance, we find the Gothic unprefixal verbal form thiuthida, and in example (8), the prefixal verbal form ga-thiuthida. Both of these forms render the Greek aorist εὐλόγησεν, meaning "he blessed." On closer observation of these passages we find the reason for the usage of these Gothic forms. Keeping in mind that the ga-compounded form expresses the complexive action, it becomes necessary to translate this form by a periphrasis. In example (7) we only have background information. We are informed "that Simeon was to see the child Jesus in the temple, and that he blessed God for this by saying" In example (8), however, the Gothic text has a compounded verbal form. In this passage, we are first informed "that Jesus took five loaves of bread and two fish ...," and then, the scribe stresses the fact "that Jesus bestowed his blessings upon the food," or better "that Jesus consecrated this food."

The same procedure is used in the OHG and the A-S texts. In examples (9) and (11) we find only background information. It is the passage where we are informed "that Jesus withdrew from a place, and that many followed him, and that he cured them all." In examples (10) and (12) we find, however, that the OHG and the A-S translators wanted to stress the act of bringing about a cure. First we are informed "that Jesus could not convert anybody in his own hometown," and then, the translators stress "that this happened in spite of the fact that he had actually brought about the cure of a few individuals."

In conclusion, from the examples presented here, there can be no doubt that Old West Germanic employed the "complexive aspect" much in the same manner as we find it employed in the Gothic language. The semantically empty prefix ga-/gi-/ge- in all three of these languages is the perfectivizing agent for East and Old West Germanic. This fact reveals that Gothic, Old High German, and Anglo-Saxon possessed a formal aspectual differentiation similar to the one found in the Slavonic languages,¹¹ in spite of the

fact that the Germanic languages never developed this system to the point in which we find it employed in the Modern Slavic grammar.

NOTES

- 1 Streitberg 1891: 70-177.
- 2 Cf. Grimm 1824: 97-129.
- 3 Spanish also has a progressive form of the conjugation in the imperfect tense.
- 4 The term "complexive" was first used by Eduard Hermann in 1927.
- 5 Cf. Palmer 1954: 272.
- 6 Cf. Comrie 1976: 90, fn. 2.
- 7 The edition cited is the one by Streitberg 1950.
- 8 The edition cited is the one by Sievers 1966.
- 9 The edition cited is the one by Skeat 1970.
- 10 Cf. Ernout and Thomas 1959:219.
- 11 In Russian, for instance, there are unprefixated verbs, such as čítat' "to read," which are imperfective. These verbs normally form perfective counterparts with the aid of a perfectivizing prefix, e.g. pro-čítat' "to read."
- 12 There are no progressive forms of the conjugation in New High German. In Old High German we find this construction only on rare occasions.
- 13 There are only a few examples in Modern English which show vestiges of this polarity between the unprefixated and the prefixed verbal forms: to bide one's time : to a-bide by the rule; the sun rises : the dead a-rise.
- 14 The example is taken from Streitberg 1909: 313.

15

Cf. Lloyd 1979: 77.

16

Cf. Lloyd 1979: 85.

17

Cf. Lloyd 1979: 28-29.

18

Cf. Lloyd 1979: 85.

19

It must be mentioned here, however, that not all Germanic verbs show the same tendency to form compounds with this perfectivizing prefix ga-/gi-/ge-. According to Lloyd, this is due to the actional energy of each verb, an area which still needs further study.

REFERENCES

- Comrie, Bernard. 1976. Aspect. London: Cambridge University Press.
- Ernout, Alfred and Thomas François. 1959. Syntaxe Latine. Paris: Librairie C. Klincksieck.
- Grimm, Jacob. 1824. "Vorrede zu Vuk Stephanowitschs" Kleine serbische Grammatik. Leipzig: bei G. Reiner, 97-129.
- Hermann, Eduard. 1927. "Objektive und subjektive Aktionsart, in" Indogermanische Forschungen, 45, 208.
- Lloyd, Albert L. 1979. Anatomy of the Verb, the Gothic Verb as a Model for a Unified Theory of Aspect, Actional Types, and Verbal Locality. Amsterdam: John Benjamins.
- Palmer, L. R. 1954. The Latin Language. London: Faber & Faber.
- Sievers, Eduard. 1966. Tatian. Paderborn: Ferdinand Schöningh.
- Skeat, Walter W. 1970. The Gospel according to Saint Matthew and according to Saint Mark; The Gospel according to Saint Luke and according to Saint John. Darmstadt: Wissenschaftliche Buchgesellschaft (Reprographische

Nachdrucke der Cambridge Ausgaben).

Streitberg, Wilhelm. 1891. "Perfektive und imperfektive Aktionsart im Germanischen," in Paul und Braunes Beiträge, 15, 70-177

----- . 1909. "Zum Perfektiv," in Indo-germanische Forschungen, 24, 213.

----- . 1950. Die gotische Bibel. Heidelberg: Carl Winter Universitätsverlag (third edition).

CONCEPTS OF VARIATION AND CHANGE

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1. Human linguistics and the tradition

The study of variation and change through human linguistics is both traditional and novel. We could still today rally around the inspiring statement of purpose set forth a century ago by Hermann Paul (1889:xxx), for it proposed that we study people, not abstractions. The main task, Paul said, is "that of showing how the single individual is related to the community; receiving and giving; defined by the community and defining it in turn; and how the younger generation enters on the heritage of the elder." We cannot automatically embrace the means he used, however, for by continuing to accept the abstractions of language, they compromised the ends of studying people.

Human linguistics also accepts what many linguists have long known or suspected: that the objects of language and grammar are not real; they are only definitional. Twaddell (1935), for example, characterized the phoneme as a convenient fiction. Recall also that Osthoff and Brugmann, when they published the Neogrammarian manifesto in 1878 (p. xii), said that language is not a thing which leads a life of its own outside of and above human beings, "It was not the Greek language that dropped final t, but those among the Greeks with whom the sound change started" (Lehmann 1967:204,209). But although they proposed to study people, they spoke in terms of the fictions of language like final t.

Human linguistics also agrees with leading linguists of the last 200 years that linguistics should be a science. But the ubiquitous influence of the grammatical tradition has led the discipline to try to follow both science and grammar at the same time. The resulting mixed linguistics is incoherent, it embraces fallacies, and it inevitably runs into serious difficulties (Yngve 1986a).¹ Even Bloomfield, who strove valiantly to make linguistics scientific, encountered grave problems. The treatment he gave of variational and historical linguistics in the second half of his 1933 book was deprived of an adequate theoretical foundation because the theory erected in the first half was grammatical and therefore inappropriate for treating people. We now know that the familiar concepts of language and grammar are originally and irretrievably unscientific in their foundation and do not adequately support a proper linguistic science (Yngve 1983).

Although human linguistics accepts these traditional views that linguistics should study people, that the objects of language are only definitional, and that linguistics should be a science, it takes them to their natural and logical conclusion, and in this it is novel. It focuses on people not in addition to a focus on language but instead of a focus on language. This is necessary because people are observable objects of nature while language is not and theories of people can be tested against observations of real objects, whereas theories of language cannot. Thus human linguistics abandons completely the 2000-year old tradition of studying language through grammar in favor of studying people through science. It embraces the methods of science not in addition to the methods of grammar, but instead of the methods of grammar. Linguistics has not gone this far before, but only in this way can it finally achieve its dream of becoming a true science (Yngve 1981, 1987).

This requires, of course, that traditional foundations based on signs or grammar, which cannot be scientifically justified, be replaced by a new scientifically adequate foundation. Such a foundation now exists in human linguistics and it has already been scientifically justified. The new theoretical structure provides a body of formal theory covering all the phenomena previously studied in linguistics and more, including those of variation and change (Yngve 1986a).

2. The new foundation for linguistics

The new foundation operates with concepts representing real persons and with concepts representing real groups of people together with their real surroundings. A concept representing a person is called a communicating individual. A communicating individual is defined as an abstraction that includes just those properties of a person that are required to account for his communicative behavior. A concept representing a group of people and their surroundings is called a linkage. A linkage is defined as an abstraction that includes just those properties of a group and its communicatively relevant surroundings that are required to account for the communicative activity associated with the group.

Since both communicating individuals and linkages are concepts of real objects that can be observed, theories based on them can be tested against physical reality as is done in the other sciences. In contrast, traditional linguistic objects such as words, sentences, and the like, being merely definitional, cannot be observed, and theories of them cannot be tested against physical reality.

Communicating individuals and linkages are known and described in terms of their properties. The properties of communicating individuals are postulated on the basis of observed similarities and differences between different persons and between

the same person at different times. The properties of linkages are postulated on the basis of observed similarities and differences between different groups of people and their surroundings and between the same group of people and their surroundings at different times. Human linguistics is thus able to adapt for its own purposes the methods of recurrent sameness and differences already familiar in linguistics.

It would be convenient if the properties of communicating individuals and linkages turned out to be grammatical in nature and we could assume that people have grammars in their heads. Unfortunately this does not work out. Neither can we suppose that there is such a thing as language that people use when they communicate, allowing us to proceed indirectly through grammar in this way. Hopes of incorporating grammar in a theory of how people communicate can never work out (Yngve 1986a). The only way to study the linguistic structure of people scientifically is directly in terms of the properties of communicating individuals and linkages, for these can be tested against real-world evidence.

Grammatical theory is simply something we must take care not to be misled by, just as linguists have learned that they must be careful not to be misled by the structure of their own language. The problem is that the grammatical tradition has become so firmly entrenched in our culture during the last 2000 years that it seems completely self-evident, and it is difficult even to think of communicative phenomena in any other way. But a linguistics that accepts or uses these fictions cannot be scientific.

3. The individual and the circle

The analysis of variation and change in human linguistics starts with a person interacting in a circle of linkages with many other people. This is illustrated in figure 1 by a communicating individual with properties I participating in the circle of linkages L with other communicating individuals J, only four of which are shown. A circle represents the total communicative environment of a person, the matrix within which he communicates and within which he is influenced to learn and to change.

A circle may include linkages with books, newspapers, radio, television, and other means of mass communication. These linkages can be investigated in human linguistics just as can those associated with face-to-face interaction. Thus any influence of writing and the media on learning and change can easily be taken into account.

In order to model a communicating individual participating in a linkage, we set up a concept of a participant. A participant is defined as the subset of the properties of the individual that are involved in that linkage. Thus the individual at the center of the circle in the figure is represented by a number of

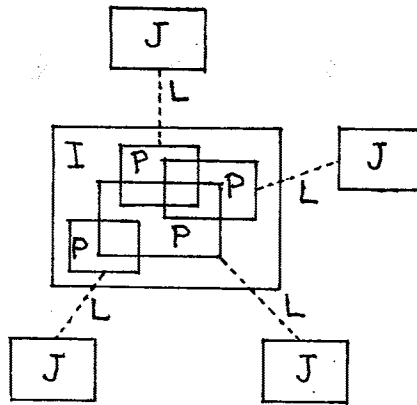


Fig. 1. A communicating individual with properties I participates in a circle of linkages L with other individuals J, only four of which are shown. The total set of properties I of the individual is partitioned into different and variously overlapping subsets P of properties, which represent the participants of the individual in the different linkages.

participants, each defined in relation to one of the linkages L of the circle. Since each linkage that an individual is a participant in is different from all the others, each participant represents a different subset P of the properties I of the individual. These different participants of the individual may have various degrees of overlap or separateness.

Consider as an example a bilingual person acting as a simultaneous translator between a television reporter and a foreign diplomat. The translator would be represented as a bilingual communicating individual having two different participants, one in the linkage with the reporter, the other in the linkage with the diplomat. These two participants in the bilingual individual may have properties that are mostly separate and different, having minimal overlap, or they may have properties with maximal overlap, almost to the point of constituting a single integrated system. A bilingual with greater overlap of properties would probably have less difficulty in translating.

The structure of an individual can be investigated in terms of its many participant subsets of properties. Participants with minimal overlap of properties would be special-purpose in their structure and uniquely appropriate to the needs of their linkages. But there would be duplication of properties from one participant to another in the same individual and little carry-over from one participant to the other while communicating or while learning. On the other hand, participants with maximal overlap and integration of properties would exhibit easier learning but might

show interference between different participants in the individual and inappropriate communicative function.

4. Processes of linguistic change

With this background we can now turn to the processes of linguistic change.

Analogy is a process that takes place first in the individual. In analogy the individual integrates into a single structure properties from different participant subsets of his properties. And since different individuals participate in different linkages, analogy will operate differently in different individuals, leading to variation.

Borrowing similarly takes place first in the individual. In borrowing, one participant of the individual incorporates properties learned in another participant of the same individual. And again, since different individuals participate in different linkages, borrowing may operate differently in different individuals, leading to variation.

An understanding of the related processes of generalization, of metaphor, of allusions and connotations, and of stereotyping can be seen to follow, and have been discussed elsewhere (Yngve 1986a, 1988). These processes all involve communicative phenomena in one linkage influencing communicative activity in another through different participants in the same individual.

Innovation may also be understood in this way. Although there may be truly novel coinages, innovations more often represent carrying over with reinterpretation or change of properties from one participant to another. When implications, connotations, or special situational features are lost from one linkage or gained in another, novelty and change are introduced.

Linguistic change can be affected by the frequency of occurrence of particular communicative phenomena. Those properties that are involved in many participants in a changing and developing individual will more likely play an important role in the resulting integrated and coherent structure of the individual. Factors of salience associated with the source linkages and other social factors will also be important. Although each individual develops differently from every other, widespread similarities between individuals can result from frequency effects.

Much of the structure of a communicating individual is concerned with determining what the individual selects to say or do in any given circumstance from his whole repertory. For the treatment of selection, human linguistics has a highly developed theory involving concepts of categorial and conditional properties

and the domain of control (Yngve 1986a, 1986b, 1988). Indeed, data from studies of selection are especially important for working out the structure of the individual.

It is factors of selection that determine what parts of the structure of an individual have a potential for affecting the development and change of other individuals. Children of immigrants will not learn an ethnic way of communicating from their parents if they do not hear it from their parents.

With the theoretical apparatus available in human linguistics we can deal simultaneously with individual phenomena and with social phenomena. And of course linguistics must be simultaneously individual and social if it is to find explanations for the phenomena it confronts. Note that the traditional linguistics of language is neither individual nor social; it is not in the domain of people at all. Human linguistics provides the only known scientifically adequate conceptual structure for understanding the relation of the individual to the group and of the group to the individuals that make it up.

5. Communities and their dynamics

The linkages of a circle contain other individuals which are the centers of other circles, forming a large network of communicatively interconnected individuals. Such a network of many linkages with individuals at the nodes is one way of representing a linguistic community. Influences in terms of learning and borrowing can move both to and from any individual in the community, giving us a picture of waves of changed properties propagating through the network like the spreading of rumors or the taking up of new fads or fashions.

Another way in which the structure of communities can be represented in human linguistics is in terms of a complex hierarchy of linkages of linkages. There can be neighborhoods of families, communities of neighborhoods, and communities of communities.

We can also take into account through overlapping linkages the overlapping nature of the various social, occupational, cultural, religious, business, and other community groups that any individual or group communicates in.

We can study the community network with the tools already available and with new tools involving statistical sampling and concepts of network flow. We can study how the network changes as individuals enter into new linkages and abandon others and as individuals migrate through geographic areas. We can study the connectivity of the network including systematic differences correlating with such variables as family, ethnic background, neighborhood, school, occupation, or hobby. Human linguistics

provides a theoretical structure well-suited to sociolinguistic studies and studies of variation, including questions of pidgins and creoles.

Historical change can be understood in terms of the processes already discussed. Since the view of the community as a dynamic changing network focuses on change, we understand that special circumstances would be required for a pattern of variation across a community to remain stable over time. Thus temporal change on an historical time scale is normal and inevitable and its mechanisms can be clearly delineated and studied. The older view influenced by the normative tradition of standard languages tended to assume uniform and unchanging languages and dialects. This has misled many writers to see historical change as anomalous and hard to explain. In human linguistics, stability on an historical time scale would be anomalous.

So we see that human linguistics theory moves easily from the study of individuals to the study of communities and allows us to understand what used to seem paradoxical: that historical change starts only with the individual but constitutes a social phenomenon.

6. Biological factors in linguistic change

We know that certain portions of the human anatomy and physiology are to some extent biologically adapted to speech--the shape of the vocal tract, the motor facility for moving the lips, tongue, larynx, and lungs, the neural mechanisms for long-term memory, for short term memory, for speech perception, and so on. These anatomical and physiological properties underlie the human ability to communicate by means of sound waves.

But these anatomical and physiological properties also serve as biological constraints to which observed communicative behavior is adapted. For example, the properties involved in vocal communication are constrained to be effective for men, women, and children in spite of the different sizes of their vocal tracts and their different voice pitches and formant structures.

Because of the structural complexity of communicating individuals and linkages, no change in a property can be considered in isolation. We have to take into account interactions not only with anatomical and physiological constraints but with changes in other linguistic properties as well.

Consider, for example, the properties structuring the hierarchy of communicative tasks and subtasks carried out in an individual during speaking and listening. The depth of embedding of tasks and subtasks that is structurally allowed will interact with expressive power and brevity. Deeper embedding allows more

expressive power and briefer expressions, other things being equal. But other things are seldom equal: expressive power and brevity of expression also depend on the size of the permanent memory and the internal complexity of memorized items.

The structurally allowed depth of embedding will also interact with the size of the temporary memory available for keeping track of successive embeddings. With a greater amount of temporary memory available, a system could handle a greater structurally allowed depth of embedding of tasks and subtasks.

Now if this same temporary memory is also used for nonlinguistic purposes, there is in turn an interaction with the possibility of doing other things while one is communicating. Executing a deeply-embedded set of linguistic tasks might interfere with carrying out simultaneous nonlinguistic tasks. And carrying out simultaneous nonlinguistic tasks might cause difficulties in executing deeply-embedded communicative tasks. One might forget what one was going to say. Such forgetting has actually been observed in the laboratory (Yngve 1973).

The effect of temporary memory on linguistic change may now be seen as follows. For whatever reason there may be a change in some properties. This may increase the structurally available depth of embedding of speech tasks. This depth may then be greater than can be handled by the available temporary memory, especially while doing other things at the same time. As a result people may have trouble in speaking. They may develop feelings of awkwardness connected with the speech tasks that got them into trouble. Tasks marked as awkward would then tend to be avoided. Their output would therefore not be heard as often. They would not be repeated as often by others in the network of communicating individuals, and they would tend to fall out of use in the community. Individuals in the future would then be led to organize their systems of properties in ways that eliminated tasks of this type. Thus we have an historical change resulting from an apparently unconnected structural change and its interaction with the constraints of temporary memory. And at the same time we have a related explanation for certain types of stylistic awkwardness.

This is essentially the historical change mechanism postulated in connection with the depth hypothesis (Yngve 1960:465-6), except that it is now based on an adequate linguistic foundation. One can see how there could be a force for reinterpreting a task hierarchy in terms of different tasks, a force for agglutination, a force for change in word order, and the like. Such an effect on the historical change of the English genitive has actually been documented (Yngve 1975).

Similar considerations would hold in connection with other anatomical and physiological constraints such as those mentioned above.

7. Natural selection of linguistic properties

We can carry the argument further into the realm of biological evolution. By means of the above sort of historical process, the learned structural linguistic properties of people adapt themselves to the facilities and constraints afforded by the biological organism. Now if the biologically inherited properties vary from individual to individual, as they always do, there is the possibility of natural selection.

Take the case of temporary memory again. An individual with a larger temporary memory would enjoy an advantage since with his learned structural properties adapted to a smaller memory, he would have fewer problems caused by the limitations of temporary memory. He would be better at doing other things at the same time that he is communicating, and he would be better at communicating during crisis conditions. This could provide a selective advantage in terms of greater success at coping with the stresses of living, a lower death rate, and a higher survival rate for his or her children.

Such an advantage would also operate at the community level. A community of individuals with larger temporary memories would, through historical processes, evolve a more efficient means of communicating. Such a community would be in a better position for coping with the natural environment and better at competing with other communities. It would enjoy a selective advantage since the survival and reproduction of each individual rests heavily on effective community organization and structure, for which effective communication is the *sine qua non*.

Note that it is only in a human linguistics that we can properly incorporate processes of biological evolution.

This brief treatment of variational and historical phenomena, together with a nearly finished textbook, completes a twenty-year push to develop an adequate linguistic science. A scientifically justified foundation has been laid, a computable formal notation has been developed, and an exhaustive survey has been completed of its applicability to communicative phenomena of all kinds. There remain no problems of principle, of concept, of scope, or of plan.

The way is now open for others to help build a new linguistic discipline. There are many studies just sitting there waiting to be taken up, pioneering studies in every area of linguistics and in every related discipline that involves the human ability to communicate. History does not often afford us an opportunity to replace a 2000-year old body of entrenched dogma by modern science.

NOTES

1. Problems of a split focus in linguistics between language and people continue to plague the discipline today where they afflict even the best work. Most if not all of the work within what some people have been calling the "mainstream" runs into these problems because it tries to focus both on language and on people and attempts to use both the methods of grammar and of science. My own work of two and three decades ago was also flawed by such a split focus.

REFERENCES

- Bloomfield, Leonard. 1933. Language. New York: Holt. [Reprint: Chicago: University of Chicago Press. 1984.]
- Lehmann, Winfred P., ed. 1967. A reader in nineteenth-century historical Indo-European linguistics. Bloomington: Indiana University Press.
- Osthoff, Hermann and Karl Brugmann. 1878. Morphologische Untersuchungen auf dem Gebiete der indogermanischen Sprachen. Part I. Leipzig: S. Hirtzel.
- Paul, Hermann. 1889. Principles of the history of language. Trans. H. A. Strong. New York: Macmillan.
- Twaddell, W. Freeman. 1935. On defining the phoneme. Language Monograph 16.
- Yngve, Victor H. 1960. A model and an hypothesis for language structure. Proceedings of the American Philosophical Society 104:444-66.
- 1973. I forget what I was going to say. In Papers from the ninth regional meeting, Chicago Linguistic Society, ed. Claudia Corum et al., 699-99. Chicago: Chicago Linguistic Society. [Reprint: The best of CLS, ed. Eric Schiller et al., 343-53. Chicago: Chicago Linguistic Society 1988.]
- 1975. Depth and the historical change of the English genitive. Journal of English Linguistics, 9.47-57.
- 1981. The struggle for a theory of Native Speaker. In A Festschrift for Native Speaker, ed. Florian Coulmas, 29-49. Janua Linguarum Series Maior, 97. The Hague: Mouton.
- 1983. Bloomfield's fundamental assumption of linguistics. In The ninth LACUS forum 1982, ed. John Moreall, 137-45. Columbia, South Carolina: Hornbeam Press.

- 1986a. Linguistics as a science. Bloomington & Indianapolis: Indiana University Press.
- 1986b. The pragmatic aspects of human linguistics. In The twelfth LACUS forum 1985. ed. Mary C. Marino and Luis A. Perez, 110-17. Lake Bluff, Illinois: LACUS.
- 1987. Linguistics among the sciences. Theoretical Linguistics, 13.257-80.
- 1988. Context, deixis, and anaphora in human linguistics. In The fourteenth LACUS forum 1987, ed. Sheila Embleton.

IX

LANGUAGE AND SOCIETY

U. S. ENGLISH: FILLING A NEED?

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"What is the official language of the United States?" It was a trick question that I was fond of using in the past to start off discussion in my course on bilingualism. Most of my students had reached a certain level of sophistication in language matters since they were majoring in English, foreign languages or linguistics. Yet, they usually gave the wrong answer to the question. Their knee-jerk response was invariably "English." Few of them made any effort to mask the expression of disbelief on their faces as I told them that English was not the official language. Indeed, the United States has no official language whatsoever. This unexpected bit of news served well to open the discussion on the difference between an official language and a national one. While the pervasive use of English in the United States might qualify it as a national language, only formal legislation could make it official. Another eye-opener for many students was to learn that the early American colonies were far from being monolingual. American history books are wont to give the impression that the original thirteen colonies were almost thoroughly English-speaking. The truth is that Dutch continued to be spoken along the Hudson river long after the British take-over of New Amsterdam. Swedish and Finnish were used in the Delaware colony for a time after its loss to the British. The Sephardic Jews of New York spoke Spanish or Portuguese and in Virginia, Italian could be heard from the lips of farmers from Tuscany who had been invited to settle there by Thomas Jefferson. German was widely spoken in Pennsylvania, especially in and around Philadelphia. In fact, the first notification of the signing of the Declaration of Independence was in German and appeared in the Staatsbote, a German-language newspaper printed in Philadelphia.

The follow-up to the discussion of the role of English and other languages in the United States was to direct the students to consult a volume of world constitutions to discover what other countries might have included statements about languages in their constitutions. When the class met again, we probed

the social, economic, and cultural forces at work in leading framers of constitutions to legislate the use of languages. One could reason, for example, that the fear of losing the support of non-English-speaking colonists kept the framers of the United States constitution from designating English as the official language of the new republic. Or, perhaps, they thought that guaranteeing freedom of speech should stretch across language boundaries. They did manage to include legislation that protected the people's right to say whatever they wished.

I can no longer use my trick question about the role of English in the United States to begin my course on bilingualism. Language use has become a widely discussed issue in this country and several individual states have legislation already approved or pending to give English official status. Spearheaded by S. I. Hayakawa, author of a well-known book on semantics written some twenty years ago (Language in Thought and Action), a national movement has come into being. Its title is U.S. English and its purpose is to force a new amendment to the United States constitution that would make English the official language of the country. The rationale behind the English Language Amendment or ELA is ostensibly to protect the English language from the onslaught of other languages thereby preserving its function as a unifying factor for all Americans. The perception of Hayakawa, Linda Chavez, Gerda Bikales and other prominent figures in the movement is that printing signs in languages other than English, allowing people to vote on ballots not issued in English, and encouraging maintenance-type bilingual education programs constitute threats to national unity. Simply stated, the view of U.S. English adherents is that bilingualism threatens to divide Americans along language lines.

Hayakawa introduced his constitutional amendment to make English official in 1981, while serving as a senator from California. The wording of the amendment reflected its main purpose which was to counteract the bilingual education act and express the distaste of some voters in California of the tolerance shown non-English speakers by the government in allowing ballots to be printed in Spanish and other languages. The proposed amendment failed to gain support in congress but Hayakawa has continued his campaign for the ELA. He has been joined by various politically conservative groups such as the Federation for American Immigration Reform or FAIR, headed by John Tanton. Tanton and his associates support laws that would restrict immigration

from non-English-speaking countries. Another group supporting the ELA is English First. According to the Legislative Hotline of the National Education Association, English First is a project of the Committee to Preserve the Family. Larry Pratt, president of English First, is also secretary of the Council on Inter-American Security. This latter organization has called Hispanics "national security risks" and has described bilingual education as the American equivalent of South Africa's apartheid system.

Aligned against the ELA is a coalition of thirty-two national and local organizations under the auspices of the National Immigration, Refugee and Citizenship Forum and the Joint National Committee for Languages. This coalition has recently established (in 1988) the English Plus Information Clearinghouse or EPIC, under the directorship of Mary Carol Combs, a former ESL teacher. In its statement of purpose, EPIC places great importance on being able to communicate both in English and in other languages. Multilingualism is seen as contributing to national productivity and international competitiveness. Some of the organizations supporting EPIC are the National Education Association, TESOL, the American Jewish Committee, and the National Association for Bilingual Education.

Although U.S. English and English Plus stand at opposite ends of the political spectrum, they do not differ in their support of programs to teach English and English-writing skills to non-English speakers. U.S. English has its Project Golden Door which has been piloted in southern California and English Plus has given its support to the so-called English Literacy Grants Program, a piece of legislation that would provide grants to states for the establishment and maintenance of English literacy programs for limited English proficient (LEP) adults (see EPIC Events, vol. 1, no. 2, May/June 1988, p. 1). EPIC readily concedes that there would be no debate between the two factions if the issue were merely to acknowledge that English is the national language of the United States and that people should learn it in order to advance economically in this country (see EPIC Events, vol. 1, no. 1, May/June, 1988, p. 3). The issue, as English Plus people see it, is whether or not U.S. English supporters will achieve that goal in their way.

On the matter of societal multilingualism, U.S. English is unequivocal in its opposition to any group that would build a political power base in the United States through a language other than English. The

position of English Plus is not so clear on this issue. In its statement of purpose, English Plus expresses its support of the principles of democratic and cultural pluralism but its concerns appear to be centered more on individuals than on groups. Among its resolutions is the intention to "encourage the retention and development of a person's first language, to build upon the multiple language skills of all members of our society and to strengthen our commitment to cultural and democratic pluralism"(see EPIC Events, vol. 1, no. 1, March/April, 1988, p. 2). No further definition is given of "cultural and democratic pluralism" and there is no indication of how this concept will be used to protect the integrity of non-English speaking communities in the United States. However, English Plus is still in its infancy and it must be given time to develop its agenda fully, especially with respect to community languages.

In the meantime, U.S. English is continuing its efforts to win approval for the ELA. Bills supporting official status for English have been introduced into Congress every year since 1981. Five bills of this nature were introduced into the 100th. Congress: four before the House (HJR 13, HJR 33, HJR 60 and HJR 83) and one before the Senate (SJR 13). HJR 13, introduced on January 6, 1987, contains the essential point of the ELA: "Neither the United States nor any State shall require by law, ordinance, regulation, order, decree, program, or policy the use in the United States of any language other than English." So far, the ELA has not reached the required two-thirds support of both the House and the Senate and would still fall short of potential ratification by three-quarters of the states within seven years. As of March, 1988, thirteen states have made English their official language. Three others have some legislation already on the books aimed at supporting other languages as well as English. Hawaii established English and Native Hawaiian as co-equal official languages in 1978. Louisiana has a 1974 statute upholding the right to preserve and promote minority languages, and New Mexico's 1912 constitution required that all official documents be published in both Spanish and English for a period of twenty years. Action is pending on language legislation in nineteen other states.

It is difficult to determine the extent of the impact on American society should an English language amendment be made to the Constitution. At least some voters have viewed the designating of English as the official language of their state much as they would the

naming of a state flower or a bird. On the more concrete points of the issue, such as support for bilingual education, voters have been more evenly divided. A poll taken in 1987 by CBS News in collaboration with the New York Times revealed that the respondents were evenly divided between those who supported bilingual education and those who opposed it (as reported in EPIC Events, vol. 1, no. 1, March/April, 1988, p. 3).

According to a survey conducted by the National Opinion Research Center and published in Public Opinion (October/November, 1985, pp. 32-33), 84% of Americans believe it is very important to speak and understand English. Among some ethnic groups, the belief in the importance of English ran as high as 90% (for Italian Americans) and 87% (for German Americans and Americans of British extraction). Hispanic Americans were not far behind: 81% of them were convinced of the obligation to learn English. If such a survey is to be believed, there is no need to pass legislation to protect the English language. It is also important to point out that belief in the value of English does not necessarily mean that one is ready to abandon the language of one's heritage and/or culture. Future surveys of public opinion should include questions about how the family language is viewed and what social functions it should fulfill.

Any law that makes English official in the United States is bound to clash with other laws that safeguard freedom of speech. For example, Proposition 63, approved by the voters of California in 1986, prohibits the passing of laws that reduce the importance of English. It also allows persons to sue the state if such legislation does happen (see Baron 1988, p. 11-12). However, the United States Ninth Circuit Court of Appeals recently ruled that the requirement to speak only English on the job "violated federal civil rights law by contributing to a workplace atmosphere that derogates Hispanics, encourages discriminatory behavior...and heightens racial animosity" (quoted from EPIC Events, vol. 1, no. 1, 1988, p. 1).

The history of language legislation in the United States is a long one with many twists and turns of direction at both the federal and the state level. The fledgling republic needed the continued influx of immigrants from non-English-speaking countries in order to populate the frontiers. There was also the hope that the French settlers of Quebec would join the revolution. The fact that the proceedings of the

Continental Congress were published not only in English but in French and German, as well, is an indication that both language communities were considered to be important to the nation. Intolerance towards non-Anglophone settlers flared up only when the English-speaking majority viewed such groups as threats to its control of national matters. Benjamin Franklin, while an ardent supporter of learning other languages, expressed a concern that the Germans of Pennsylvania would succeed in 'Germanizing' the English constituency of that state (see Baron 1988, p. 8).

In the period that began in 1880 and lasted until the middle of the present century, what there was of the initial tolerance toward other languages dissipated and English-language requirements came to be used blatantly to exclude or discriminate against various minorities. Negative feelings toward German, Polish, and the Scandinavian languages were especially strong during and after the First World War. It was around this time that local ordinances were passed forbidding the use of German. One state governor went so far as to ban the use of all languages other than English on the telephone and in public places (see Baron 1988, p. 8).

The rise of nativism in the years following the First World War led some to press for a change in the name of the national language. In 1923, Jay McCormick, a representative from Montana, introduced legislation into Congress to make 'American' the official language of the United States (Baron 1988, p. 6). The effect a distinct labeling would have had on national norms of pronunciation, grammar, vocabulary, and style is unclear. The pendulum continues to swing back and forth in both the United States and Britain between language authorities who underscore the differences between the two varieties of English and those who emphasize the similarities between them.

Psychologists and educators have also contributed to the general animosity toward language diversification in the American population. Starting with the turn of the century, immigrant children were given linguistically and culturally biased 'intelligence' tests which showed them to have a high incidence of mental retardation (see, for example, Ayres 1909). Teachers instructed school children not to speak their parents' languages at home and to insist that their parents speak only English. It is the author's own experience that some teachers were continuing in this practice as late as this decade.

Attitudes toward languages in the United States became more liberal around 1950. School systems began to expand their foreign language offerings. FLES programs arose in many parts of the country and enrollments increased at the high school and college levels. The passage of the Bilingual Education Act in 1968 and the National Ethnic Heritage Act shortly thereafter were high points for national acceptance of linguistic and cultural pluralism. While the ethnic heritage act stimulated school programs in a variety of languages and cultures, the bilingual education funds went largely to Hispanics. At various times, as many as 98% of the bilingual programs involved instruction in the Spanish language. The ethnic heritage act was eventually phased out but bilingual programs have continued to receive federal support. The bilingual education act has been recently re-authorized as part of the 1988 education omnibus bill H.R. 5. Perhaps it was inevitable that bilingual education would become a political football. The supporters of U.S. English characterize their movement as a direct reaction to federal funds being spent on non-English instruction, especially as it is given to Spanish speakers. It is also evident that deeper political issues underlie the language controversy. U.S. English advocates perceive a threat in the form of millions of immigrants arriving in the United States and forming political blocks to compete with the dominant English-speaking population. Their concern is undiminished even in the face of statistics showing that only 2% of Americans do not use English regularly and by the third generation, most Americans are dominant in English.

The case of French/English bilingualism in Canada is often cited by supporters of official English as an example of how bad the situation can get. As the new Official Languages Act of Canada (Bill C-72) expands the use of French to many governmental functions which have been conducted only in English up to now, expenses rise for all Canadian tax-payers and governmental functions become more burdensome. The U.S. English newsletter (vol. VI, no. 3, May/June 1988 issue) contains reports of how English speakers are being suppressed in Quebec. In one report, workers in a fast-food restaurant in Montreal were spied upon by government undercover agents trying to catch them using English. Such horror stories are intended to point up the inadvisability of bilingualism. What is not being addressed here is that the Canadians have their own reasons for making bilingualism official. The struggle of French-speaking Canadians to win political status

for their language on a par equal with that of English has been so intense at times that it has threatened to tear the country apart. The move to recognize the two languages officially has had a healing effect on Canada. Some Canadian leaders have even found their bilingualism to be an exportable commodity. According to D'Iberville Fortier, Commissioner of Official Languages, "Canada's bilingual and multicultural heritage keeps us (i.e., the Canadians) sensitive to issues in the North-South dialogue which dominate the global debate" (Fortier 1987, p. 4). In contrast to this positive view of bilingualism is the concern expressed in the United States by the National Advisory Board on International Education Programs that our country's indifference to languages and cultures is "unique among advanced industrial countries" (National Advisory Board 1983, p. 12). Lester Therow, Dean of the Sloan School of Management at MIT, adds his voice to those who are worried about the linguistic myopia of the American business world. Therow is quoted in the March 7, 1988 issue of U.S. News and World Report as saying that "to be trained as an American manager (i.e., one without international competences) is to be trained for a world that is no longer there."

Australia--to mention another country with a dominant English-speaking population--has recognized that the 18% of Australians who can speak other languages are a valuable national resource. The following quote is from the National Policy on Languages published in 1987 (see Lo Bianco 1987, p. 15):

It is in Australia's interest to develop high levels of competence in languages of geo-political significance. Many such languages overlap with community languages and therefore there are many young Australians whose potential bilingualism ought to be fostered in their interest and in the nation's interest.

If the forces of English Plus prevail in the United States, we are likely to move somewhat in the direction of Australia vis-a-vis language attitudes. It seems unlikely that we will have official bilingualism on the model of Canada. If adherents to U.S. English are successful, the United States may find itself with a language policy that is opposed to either Australia or Canada--or even to England where the treatment of minority languages has been liberalized in keeping with that country's membership in the European Common Market.

Rather than declare English the official language of the United States, it has been suggested that a national commission on language matters be established (Marshall 1986). Such a commission would keep a close watch on the changing language situation and submit reports that would assist Congress in drafting effective laws and revising or abolishing old laws that are no longer valid. If such a commission were to be put in place, perhaps its charge could be extended to address a language-related problem that is substantial in the country. I am referring to the issue of literacy. Although 95% of adult Americans can read the printed word, a sizable number of them, estimated at 20%, cannot read well enough to meet the challenges of contemporary life. These 'semi-literates' are unable to make sense from instructions printed in operating manuals or extract the central meaning from newspaper articles about current events (Kirsch and Jungeblut 1986). It also appears that the majority of such people are not speakers of Spanish or other languages but are monolingual speakers of English, in one or more of its geographical or social varieties.

An electorate that reads poorly in any language is clearly a greater danger to the health of a democracy than one that can be reached in several languages. It is not a language that holds Americans together as a nation but rather the informed participation in the democratic way of life that our constitution protects for all of us.

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REFERENCES

- Ayres, L. P. 1909. Laggards in Our Schools. New York: The Russell Sage Foundation.
- Baron, D. 1988. "The English Language and the Constitution." Paper delivered at the 22nd. annual convention of TESOL, Chicago, Illinois.
- Fortier, D'Iberville. 1987. "The Canadian Agenda--Paradoxes and Convergences," Language and Society, no. 21 (Winter), p. 4.
- Kirsch, I. & A. Jungeblut. 1986. Literacy: Profiles of Young Adults. National Association of Educational Progress, report no. 16-PL-02.
- Lo Bianco, J. 1987. National Policy on Languages. Canberra: Australian Government Publishing Service.
- Marshall, D. 1986. The Question of an Official Language: Language Rights and the English Language Amendment. Special issue of the International Journal of the Sociology of Language. New York: Mouton.
- National Advisory Board on International Education Programs. 1983. Critical Needs in International Education: A Report to the Secretary of Education. Washington, D. C.: Department of Education.

THE EPHEMERALITY OF AMERICAN COLLEGE SLANG

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Although it is difficult to document college slang before the nineteenth century, the creative use of language by college students to grumble to each other about their lot in life and about those in authority over them must date in Western Europe to the earliest days of the universities. To keep check on ribald, quarrelsome, and blasphemous speech among students, college statutes mandated a combination of silence and the use of Latin. (Rait 59) Perhaps one of the first items of college slang was lupi [wolves], 'spies who reported students using the vernacular'. (108) Students undoubtedly did use the vernacular, or there would be no need for lupi, and most likely developed slang in the vernacular too. The editor of a 15th century Latin manuscript suggests that the English phrase ars lyke masquerading as a gloss above a Latin word may be "a naughty schoolboy's graffiti." (Ross 142) Five hundred years later students still invent unflattering descriptions for 'one who curries favor', e.g., AK 'ass kisser' or brown noser, but, because of the oral and ephemeral nature of such vocabulary, a direct, unbroken line of descent cannot be taken for granted.

Ephemerality is ordinarily claimed to be a defining characteristic of slang vocabulary taken as a whole; i.e., slang words and phrases enter and exit the language more rapidly than do vocabulary items of more general usage. This paper examines the comings and goings within one segment of American slang, that of college students, by comparing published lists of US college slang for the past century with each other and with my own fifteen year collection from undergraduates at the University of North Carolina at Chapel Hill.

Reconstruction of US college slang during the nineteenth century relies heavily on two sources, B. H. Hall's College Words and Customs, 1856, and Lyman Bagg's Four Years at Yale, 1871. Hall's work is the more valuable for linguistic information because it is a listing of words and customs and draws examples from British universities as well as from many US colleges. Four Years at Yale contains a seven-page alphabetized list of words from the author's undergraduate years at Yale in the late 1860's. These two sources plus the novel Student Life at Harvard, 1876, which purports to "give a faithful picture of student life at Harvard

University, as it appeared to undergraduates there" during the 1860's, reveal a slang vocabulary concerned with campus landmarks, rivalry among the classes, making a fashionable appearance, eating and socializing, and studying as little as possible. The campus landmark which inspired the largest number of slang synonyms was the 'privy', called the joe, minor [house], coal yard, temple, and number fifty and number forty-nine at Harvard and number ten and number 1001 at Wesleyan, Vermont, and Dartmouth. 'To be absent from recitation or lecture' was to bolt or cut. 'To fail completely' was to flunk, but 'to fail partially' was to fizzle. At North Carolina in 1851, to fail in recitation was to fess. (Dickinson 182) 'To study hard' was to dig, grind, grub, or pole, and to study hard at the last minute was to cram, its noun form cramination. 'Someone who curried favor with teachers or others for advantage' was a bootlicker, pimp, piscatorian, toady, or supe. Other items were scrub 'poorly dressed, socially inferior man'; beggars 'rivals'; chum 'roommate'; rough 'tease'; rub 'give difficulty to'; squirt 'attempt at recitation'. The use of a translation for recitation in Greek and Latin classes was commonplace, and the metaphor of riding a horse gave rise to pony, horse, trot, taking a ride, riding a pony, etc. Relatively few slang words for 'drunk' are recorded in these sources, and almost no terms have sexual referents, as these were all publications written by gentlemen for polite society.

Public interest in college slang during the latter part of the nineteenth century is shown by the many short and often anecdotal articles on the topic published in newspapers and magazines. In 1900, with the publication of "College Words and Phrases" in Dialect Notes, Eugene Babbitt laid the foundation for the professional study of US college slang. Babbitt and fellow members of the New York branch of the American Dialect Society first conducted a pilot study based on thirty words circulated to several leading colleges. (See Table 1) The responses led them to expand the list to three hundred items, which were then sent to "all the colleges and universities in the country, as well as to a number of secondary schools." (5) The results of responses from about 100 schools are reported in a forty-nine page glossary accompanied by a perceptive seventeen-page essay, still the best record of US college slang of any era and the base line for any study of the history of US college slang.

One measure of the ephemerality of slang is the comparison of slang vocabulary at the same institution at different times. I have located only two studies of

this sort, both reported in American Speech. Slang items from Stanford University published in 1927 (Morse) were found to be largely out of use just five years later: "In comparing the 'Stanford Expressions' of 1926 with those of 1931 I find a complete change. The place-names, and a very few characteristic Stanford words such as 'apple-polisher', 'bawlsout', and 'rough' are the only words used as slang now--we use about fifty of the five hundred words typical of Stanford in 1926. This period of five years has had an astounding effect on our language!" (Shidler 435)

A much more ambitious and rigorous study of the staying power of college slang was undertaken in 1962 at Kansas University by Alan Dundes and Manuel R. Schonhorn, using as their point of departure an eighty-five item list collected at Kansas thirty-six years earlier and published in American Speech in 1928. (Pingry and Randolph) Dundes and Schonhorn not only tested groups of over 150 undergraduates for usage and recognition of college slang items, but they also incorporate into their description references to the terms in dictionaries and in published accounts of slang on other campuses. Thus, their study is comparative across both time and space. With regard to time, they found that thirteen items (15%) reported in 1926 were in use in 1962. (See Table 2.) Thirty-nine were recognizable to at least five members of a test group of thirty-seven undergraduates. But thirty, over one third, were completely unknown, e.g., eagers 'anxiety or haste'. (175) With regard to variation across space, Dundes and Schonhorn verify Babbitt's 1900 evidence that much college slang crosses campus and regional boundaries. For example, the most popular way of indicating 'to curry favor with a professor' at Kansas in 1962 was to brown nose, reported also at the Citadel and at Albion College, Michigan. Its synonym apple polish, which had been one of three synonyms for the notion listed in 1926, was fourth in popularity in 1962 with attestations at such farflung campuses as Stanford, Florida, Missouri, and Minnesota. (169) 'An easy college course' at Kansas in 1962 was overwhelmingly called a pud; the second choice was snap, recorded in general usage more than a half century earlier in Babbitt's 1900 study. (167)

The most extensive, published, synchronic lexicon of the slang of a single campus was gathered by Gary Underwood at the University of Arkansas in 1971. Underwood lists over 750 items of Razorback slang. About 300 were either labeled as slang in dictionaries, e.g., the drug terms crash, Mary Jane, and roach, or reported in listings of campus slang, e.g., bummer,

drop acid, and space out. The remaining 450 items had not been reported as college slang previously and included the now widespread dork 'person regarded as odd or eccentric', hassle as a verb, and rip-off 'overpriced goods' as well as words I have never encountered, e.g., bimps 'French-fried potatoes', gimped up 'confused', lurky 'weird'. A comparison of just two notions typically lexicalized in US college slang can demonstrate the overlap of life cycles of specific items across time and space. The 1971 Razorback terms for 'curry favor' were brown nose and get brownie points but, unlike Kansas slang of nine years earlier, not also apple polish or suck. Pud for 'easy course' was by far the favored term at Kansas in 1962 and was used along with skate by students at Arkansas nine years later. However, the less popular snap, breeze, and gut of Kansas are not reported in the Arkansas corpus.

Because of its size and date, Underwood's Razorback corpus provides a useful basis of comparison with my collection of campus slang gathered from undergraduates at the University of North Carolina at Chapel Hill from fall 1972 through fall 1987.

The data were submitted to me as examples of "good, current, campus slang" by undergraduates enrolled in English 36, an introductory English grammar course. Undoubtedly many items actually in use on campus at each time were not reported--either by deliberate choice (censorship on the part of students) or because students did not think of them when they were doing the assignment. And it is possible that only a small sector of the student population used certain of the items. It is also likely that no individual member of the class knew or used all of the items. In the collection, items are only sporadically identified by the sex, race, or other group affiliation of the user. Another important point to keep in mind is that this is not a classical longitudinal study--it is not a comparison of the same set of subjects at specific moments over a span of years. It is a comparison of the group-identifying vocabulary of a segment of undergraduate students enrolled in the same course at three points in a fifteen year period.

This study tabulates the overlap of items collected in the fall of 1972, the fall of 1987, and in the fall of 1980, a year which lies outside the two, complete seven-year generations of college students at the beginning and end of the fifteen years covered in the collection, i.e., the classes graduating 1973-79 and 1982-1988. The size of the collections at the three points differs. In fall 1972 and again in fall

1980, I collected around 200 items. In fall 1987 I collected (from twice as many students) around 500 items.

A simple head-word plus definition comparison of the three sets bears out the ephemeral quality of the UNC-CH student vocabulary. Only four of the slightly less than two hundred items from 1972 were submitted with the same form and meaning in both 1980 and 1987, roughly 2% of the 1972 and 1980 collections and less than 1% of the 1987 collection. (See Table 3 a.) An additional eight occur in both 1972 and in 1987, but not in 1980 (See Table 3 b.) That makes a total of twelve items reported in both 1972 and 1987, about 6% of the 1972 corpus or 2% of the 1987 corpus. Table 3 c shows the fifteen items that occur both in 1972 and in 1980, for a retention rate of about 7%. Twenty of the two hundred slang items from 1980 are reported still in use in 1987, about 9% of the 1980 corpus and about 4% of the 1987 corpus. (See Table 3 d.) Whether or not these numbers are absolutely accurate or the differences statistically significant, within a span of fifteen years the specific items of slang vocabulary of UNC-CH undergraduates have obviously changed to a very large extent.

Some slang words, however, have maintained their form and meaning in this great flux. The four items that occur in all three collections are bad 'good'; bummer 'unpleasant experience'; slide 'easy course'; and wheels 'car'. Another eight occur in both 1972 and in 1987 but were not submitted in 1980: cool 'good, in-the-know, sophisticated'; do 'all purpose verb'; get real 'be serious'; gravy 'easy'; pound 'drink heavily'; shit 'expression of anger or disappointment'; threads 'clothing'; and tough 'good, admirable, attractive'.

Two more show only a slight change in form: 1972's bomb out and psyched up/out show up in 1987 as bomb and psyched, with the same meanings as the forms with the particles. A banana 'a foolish or idiotic person' of 1972 is surely kin to 1987's banana factory 'hectic, horrible, futile situation'. Dude 'any male' has become an all-purpose, casual noun of address, as in "Say, dude, you didn't give me enough change." Shaft, a noun meaning 'bad luck, unfair deal' in 1972 specializes in 1987 as a verb meaning 'to play a love interest for a fool'.

Several forms have shifted meaning in varying degrees in predictable ways. Crash now means 'a deep sleep induced by fatigue' but in 1972 it was 'withdrawal from amphetamines'. In 1972 a dog was specifically 'an unattractive female' but in 1987 it applies to

'anything unattractive or ugly'. (Dog can also mean 'perform well': "I dogged that test.") Jam still means 'make music', but it now more commonly means 'do well at something', like "I was jamming on that test." Trip in 1972 was a noun, 'the hallucinogenic effects of drugs or an emotional high'; in 1987 it is a verb, 'to act amazed at strange, emotional, or euphoric behavior'. Gradoo 'mess, clutter' has pejorated to 'feces'. In 1972 to say "That fellow really knew his shit for that quiz." was a compliment. By 1987 shit had ameliorated even more, the shit meaning 'the best', as in "Wow, that leather jacket is really the shit." Psyche has acquired an additional meaning of 'fool, trick, or tease' because of an Eddie Murphy comedy routine: "I really got the psyche on you when you thought I'd left." (This exact use of psyche is reported as current slang at the black Lincoln University by Hugh Sebastian in 1934, as was a positive meaning of hellacious, which was reported as current Razorback slang thirty-seven years later.) Groovy fifteen years ago had positive connotations, but now it is used ironically to mean 'out of date like the expression groovy'.

Other differences in meaning are more drastic--and probably the identity of the forms is merely accidental. In 1972 bag meant 'interest'; in 1987 it means 'to quit, disregard, reject', as in "I might as well bag this whole semester since I'm failing three classes." Brick was 'half a kilo of marijuana' but in 1987 was reported to mean 'do poorly on an exam or assignment', transferred no doubt from brick, 'a poor shot in basketball'. Joint in 1972 also made reference to drugs, 'a marijuana cigarette'. But in 1987 a joint is 'any place'. The heat in 1972 was 'the police'; in 1987 the heat is 'something of high quality': "Eddie Murphy's the heat among comedians."

Even adding the above forms with shifted meanings to the twelve slang items that have the same form and definition in 1972 and 1987, the total percentage of college slang words in this collection that have lasted for fifteen years is still under 10%.

A comparison with Underwood's larger 1971 Arkansas corpus does not change the picture appreciably. About 40%, or 83, of the 1972 North Carolina items also occur in the Arkansas corpus. Of the 83 items in common, seventeen (20%) exhibit some staying power, showing up in either 1980 or 1987 or both. Possibly the use of an item on more than one campus gives it a better chance at a long life. (See Table 3 a,b,c.) In addition, three Razorback items which are not recorded in the 1972 Carolina corpus show

up in 1980 and 1987 (See Table 3 d.), and fifteen more only in 1987. (See Table 3 e.)

The presence or absence of a particular term at the intervals displayed in Table 3 must be interpreted with caution. The occurrence of an item in adjacent columns does not guarantee unbroken usage, any more than the absence of an item indicates its extinction. For example, the word hoop for 'basketball' first appears in the North Carolina corpus in spring 1980 and occurs only at the most recent of the sampling points, fall 1987. Although hoop was submitted as "good, current, campus slang" only in spring 1980, fall 1981, fall 1983, spring and fall 1984, spring 1985, fall 1986, and spring 1987, I am sure that it has been in continuous, if limited, use at North Carolina during the fifteen year period covered in the study. Since its attestation in the Arkansas corpus shows that hoop was not unknown in college circles in fall 1971, and since basketball is the constant topic of conversation at Carolina from November to March, what accounts for the dormancy of hoop during the 1970's and its burst into popularity in the 80's?

The small percentage of items that have persisted should not be surprising, for here slang mirrors the language as a whole, as it does in its morphological and semantic processes. Looking back 1,000 years in English, we find that the vast majority of words have changed, e.g., OE niman has been completely replaced by take and other verbs; OE guma persists only in hidden form in bridegroom; third person plural pronouns begin with th instead of h; all words with long vowels are pronounced differently from the way that Chaucer pronounced them. Only a few words have retained their form and meaning, like OE ecg 'edge', OE saet 'sat'. What is important about the slang corpus is not the small portion of forms that have persisted, but the short span of time involved.

The question of why these particular twelve items have remained in the slang lexicon for fifteen years is just as difficult to answer as the question of why a common and frequent verb like sat persisted while an equally common and frequent verb nam disappeared. The twelve items appear almost a random sampling of slang items--nouns, verbs, evaluative adjectives, an interjection--showing a range of semantic processes--amelioration, metaphor, metonymy, irony. As a collection of college slang they are fairly representative, except in two obvious ways. 1) None means 'drunk', and 2) none gets its meaning by allusion to specific cultural knowledge--as in 1972 pink floyd

'overwhelming experience' or in 1987 pull a Ferris Buhler 'take the day off'.

The most obvious difference between the two sets of slang from 1972 and 1987 is that the slang of 1972 contains many more references to drugs and to the consequences of taking drugs. Forty-one, over twenty percent, of the 1972 items are drug related. Only five of the almost five-hundred terms from fall 1987 were submitted with definitions that refer to drugs. A reverse situation can be seen in the slang items for alcohol and drinking in the two sets of slang. The 1972 corpus has only six such terms; by contrast, the 1987 corpus has forty-four items--almost ten percent. It is interesting to note that the drug and alcohol related vocabulary is in many instances interchangeable. Although most of the individual items in the sets of slang from 1972 and 1987 are different, many of the meanings are approximately the same: far out=awesome, cool=sweet, boss=def, hang loose=chill, pig out=mow on, etc.

Another feature of the comings and goings of slang--which may not mirror the general vocabulary--is that slang terms come back for a second and third life, the way that fashions do. For slang is the linguistic equivalent of fashion. For example, cram 'study hard at the last minute' was submitted as current in fall 1980 and fall 1987, but not in 1972 at North Carolina or in 1971 at Arkansas. Dead soldier, which has been part of military slang since the 18th century when it meant 'empty bottle', emerged at North Carolina in 1987 in the specialized sense 'empty beer can'. Out-of-sight 'excellent, extraordinary' of the 1960's was felt at the time to be novel and fresh, but was a reincarnation of the same form and meaning used in the Bowery in the 1890's and recorded in Stephen Crane's Maggie: Girl of the Streets in 1896. (Peck) Hot 'sexually attractive' is currently in vogue for the humpteenth time, as well as gravy for 'an easy test or course.'

I have noted repeatedly that slang items come and go. In truth, it is easier to pinpoint, and in some instances to explain, the comings than the goings. Ghetto-blaster, jambox, and third world briefcase naturally did not come into the language before this past decade because the 'portable stereo tape deck' had not been invented. Likewise, when a referent disappears, the slang item for it is likely to go. A striking example from college slang is the apparent loss of the most pervasive set of college slang items of the nineteenth century, words having to do with pony for 'a literal translation', which have been lost

because Latin is no longer a required subject. But loss of referent cannot explain the demise of these American college slang terms of the 1930's and 40's: flat tire 'unattractive girl', d.a.r. [damned average raiser] 'student who gets good grades', el foldo 'failure', Jonathan Simonizer 'one who curries favor', candidate for the plumber's degree 'one who takes easy [pipe] courses', drop quiz 'unannounced test'. From a distance of thirty years, these slang items seem to me just as fresh and viable as 1987's double bagger 'unattractive girl', shroom 'act wild or strange', or be vapor 'leave'. The terms from the 30's and 40's may not be dead but merely resting. It is possible that for college slang items the Mark Twain principle applies: reports of their death have been greatly exaggerated.

Works Cited

- Babbitt, Eugene H. "College Words and Phrases." Dialect Notes 2.1 (1900): 4-70.
 [Bagg, Lyman]. Four Years at Yale. New Haven, 1871.
 Dickinson, M. B. "Words from the Diaries of North Carolina Students." American Speech 26 (1951): 181-84.
 Dundes, Alan and Manuel R. Schonhorn. "Kansas University Slang: A New Generation." American Speech 38 (1963): 164-77.
 Hall, B. H. College Words and Customs. Cambridge, MA, 1856.
 Morse, William R. "Stanford Expressions." American Speech. 2 (1927): 275-79.
 Peck, Richard E. "'Out of sight' is Back in View." American Speech 41 (1966): 78-79.
 Pingry, Carl, and Vance Randolph. "Kansas University Slang." American Speech. 3 (1928): 218-21.
 Rait, Robert S. Life in the Medieval University. Cambridge: Cambridge UP, 1912.
 Ross, Thomas J. "Taboo Words in the Fifteenth Century." Fifteenth Century Studies: Recent Essays. Ed. Robert F. Yeager. Hamden, CT: Arch Press, 1984. 137-60.
 Sebastian, Hugh. "Negro Slang in Lincoln University." American Speech 9 (1934): 287-90.
 Shidler, John Ashton. "More Stanford Expressions." American Speech 7 (1932): 434-37.
Student Life at Harvard. Boston, 1876.
 Underwood, Gary. "Razorback Slang." American Speech 50 (1975): 50-69. [Research Conducted in 1971.]

Table 1

Items Used in Babbitt's Preliminary Survey, 1901

- BALL UP -- confuse
 BONE -- study diligently
 CINCH -- something obtained or done without difficulty
 CO-ED -- woman studying at a coeducational institution
 CRAM -- one who does much studying before an exam, a hard course, a lecture course; attempt to store the mind hastily with a great number of facts preparatory to an exam
 CRIB -- interline, cheat in recitation or examination; steal
 FIEND -- one who excels in anything; one addicted to a habit; an instructor who makes his students work hard; a fool, a blockhead; an enthusiast; a hard student
 FLUNK -- fail in recitation or examination; fail in any undertaking
 FRAT -- fraternity, member of a fraternity
 FREAK -- somebody or something of peculiar appearance; a student who is exceptionally proficient in a given subject; fool, blockhead, an anomalous student
 FRESH -- impudent, rude; conceited, officious; unsophisticated
 FRUIT -- a person easily influenced; one easy to defeat; an instructor whose course is not exacting; an immoral woman; a good fellow; etc.
 GRIND -- student who confines himself to persistent study; a course requiring an unusual amount of studying
 GRUB -- a grind; to bone or to grind
 HORSE -- a literal translation used in preparing a lesson; study with the help of a translation
 JOLLY -- give the instructor the impression that one knows more than he does
 LUNCH HOOKS -- the hands, a finger, a tooth
 PLAY HORSE WITH -- ridicule or make sport of; tease or annoy; act in an unruly manner; get help from another in the preparation of a lesson
 PLUCK -- report a student as deficient in examination; expel, take down, call to account
 PLUG -- study hard

PONY -- literal translation; translate with the help of
a pony
PREP -- preparatory student; lazy student
PRUNE -- absent one's self from a class exercise
QUIZ -- short examination
RIDE -- use a translation
ROAST -- treat unfairly; censure; ridicule
SHEEPSKIN -- diploma
SNAP -- easy task in any subject; course requiring
little or no study
STUNT -- [not defined by Babbitt]
TROT -- translation; make use of a translation

Table 2

Slang Reported at U. of Kansas, 1926 and 1962

APPLE POLISH -- curry favor with a professor
BITCH -- difficult college course
BRAWL -- particularly rough and noisy party
BUST -- particularly rough and noisy party
CAMPUS -- deprive a student of campus privileges
CRIB -- cheat during an examination
KNOCK-OUT -- pretty girl who has sex appeal
OILED -- drunk
POLLUTED -- drunk
SHOTGUN QUIZ -- unexpected examination
STEWED -- drunk
SUCK -- curry favor with a professor
TANKED -- drunk

Table 3

Slang at the U. of Arkansas and the U. of N. Carolina

	(750) U-ARK 1971	(200) UNC-CH 1972	(200) UNC-CH 1980	(500) UNC-CH 1987
a)				
BAD-good	x	x	x	x
BUMMER-bad experience	x	x	x	x
SLIDE-easy course		x	x	x
WHEELS-car	x	x	x	x
b)				
COOL-good, stylish	x	x		x
DO-all-purpose verb	x	x		x
GET REAL-be serious		x		x
GRAVY-easy course		x		x
POUND-drink heavily		x		x
SHIT-damn		x		x
THREADS-clothes	x	x		x
TOUGH-admirable, good	x	x		x
c)				
BLAST-party, fun	x	x	x	
BURNED OUT-exhausted	x	x	x	
CUT SOME SLACK-ease up		x	x	
DOG-unattractive female		x	x	
GET INTO-enjoy		x	x	
HEAD-marijuana user	x	x	x	
HUNK-handsome male	x	x	x	
JAM-play music	x	x	x	
JUKE-dance	x	x	x	
NERD-inept person, jerk	x	x	x	
PIG OUT-eat a lot		x	x	
SPACED-inattentive	x	x	x	
SPACEY-inattentive	x	x	x	
TRIP-something unusual		x	x	
UPTIGHT-nervous	x	x	x	

Table 3, cont'd.

	(750) U-ARK 1971	(200) UNC-CH 1972	(200) UNC-CH 1980	(500) UNC-CH 1987
d)				
AIRHEAD-inattentive person			x	x
BAG-discontinue, stop			x	x
BLOW OFF-fail to attend			x	x
BREW-beer			x	x
BUMMED OUT-depressed			x	x
CRAM-study hard			x	x
CRASH-sleep heavily	x		x	x
FLAG-fail a test	x		x	x
FRIED-mentally fatigued			x	x
GRUB-kiss			x	x
INTO-interested in			x	x
PSYCHED-mentally ready			x	x
REALLY-expression of agreement			x	x
RIDE-car	x		x	x
RIPPED-drunk			x	x
SCOPE-look for a date			x	x
SWEET-excellent			x	x
TRASHED-drunk			x	x
WASTED-drunk			x	x
YO-greeting			x	x
e)				
BOGART-take unfair share	x			x
BOMB-fail	x			x
BUZZED-mildly drunk	x			x
DOOFUS-dimwit	x			x
DORK-odd, inept person	x			x
DUDE-person	x			x
FREAK OUT-act like on drugs	x			x
HOMEBOY-unpretentious person	x			x
HOOPS-basketball	x			x
HOT-sexually attractive	x			x
JAM-dance	x			x
JIGABOO-black	x			x
SHAFT-treat unfairly	x			x
WEIRDO-strange person	x			x
ZIT-pimple	x			x

BECOMING A SOCIAL MAN

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In his chapter "Language and Social Man," M.A.K. Halliday writes: "Looking at the early stages of language development from a functional viewpoint, we can follow the process whereby the child gradually 'learns how to mean' - for this is what first-language learning is" (Halliday, 1978, 19). In this paper, I intend to discuss how a child learns to express his meaning through nonverbal behaviors at an early stage of language development, and, more importantly, how a child in the process of learning how to mean, becomes aware of the social consequences of his actions, the functions of language which he is going to use to cope with the social system, and the culture that he is going to adopt. Specifically I want to present my view on a point of transition which Regan has stated as being of major consequence in the development of the higher forms of social man. I will illustrate these points by drawing upon the functional theories established mainly by M.A.K. Halliday as well as observations by Regan, Hong, & Zhao (1987) and Han (1987).

Learning language is learning uses of meaning, of meaning potential. This potential can be realized through either verbal forms (vocal words and sentences) or nonverbal forms (gestures, facial expressions, body movements, and imitative actions). At the stage before the child has completely grasped the ways whereby his meanings can be realized at the level of lexicogrammar, most of his communication behaviors are carried out through nonverbal means, which of course are still used frequently in the individual's later life. "In some cases, it is difficult to construct verbal sequences for multiple social purposes as effective as non-verbal ones" (Regan & Ziajka, 1980, 306). Consider the following events:

Observation (A1) is that made by Halliday of Nigel, an eleven-month-old child:

(A1):	Meaning	Expression
(1)	"I want that"	Grasp object momentarily, then let go...
(2)	"I don't want that"	Touch object lightly and momentarily

- (3) "Do something with that Touch object firmly for
for me to watch" measurable time

(Halliday, 1977a, 173)

When Nigel did these, his eyes were on the person holding the object, not on the object itself.

(A2): Lulu's mother took him to see one of her friends. While sitting on her lap, the boy (age 10 months) noticed a plate of chocolates nearby. Rather than take one, he began a sequence of hints. He moved his hand slowly onto the table, touched the plate momentarily, and then looked at his mother who pretended not to notice. After a pause he repeated his action without result. Again he waited, then took his mother's hand and put it near the chocolate plate, meanwhile looking with a smile in the opposite direction. (Regan, Hong, & Zhou, 1987)

(B1): Shanshan (age 7 months) had known that the colorful, square-like box on the table was a container for biscuits. When she wanted to eat she usually stretched her hand, with her index finger pointing to the box, then turned to her mother who was engaged perhaps in knitting. Her first effort at persuading failed but she had a second try with her finger still pointing to the box, uttering "en, en, en..." until her mother paid notice. Sometimes her mother pretended to pay no attention to her and didn't give her any biscuits. At such times she would cry.

(B2): At dinner time Shanshan's parents usually put her in a baby carriage near the dinner table when her parents were eating. Shanshan would stand up, look at the food in the dishes, and then look at her parents while stretching her hand to grasp the food. At this time her mother or father would take her hand away from the dishes and make her sit down. But immediately she would try a second time, then a third time. At last her mother would pull her carriage away from the dinner table, or tie her with a scarf to force her to sit still.

The above three children are all at the pre-speech stage or close to the stage of learning speech. But certainly they have been "already meaning for a long time" (Halliday, 1977a, 172). As we see in the observations, they are all trying to attain the same goal by means of acting nonverbally. They are recruiting nonverbally the "instrumental" function, the "I want" according to Halliday. But are there any differences between their acts of meaning?

We can notice that both Lulu's chocolate and Nigel's "I want"/"I don't want" events are examples of an indirect mode; both are attempts at "intentional, indirect, iconic, persuasion of others" (Regan, Hong, & Zhou, 1987); Shanshan's biscuit and

dish events are obviously examples of a direct mode. As each attempts intentional, direct, iconic persuasion of others, the difference lies in the modes of action. Shanshan's is direct wanting and taking, while Lulu's and Nigel's are indirect and symbolic wanting. Since all three children are at the pre-speech stage, why do the modes differ from each other in the two groups of observations, Group A and Group B? Surely Lulu can take the chocolate directly, without persuasion and permission of her mother; Nigel, too, can grasp the object directly without looking at the person he was addressing, just as Shanshan does in observations B1 and B2. Lulu and Nigel do behave differently from Shanshan. Perhaps both know something about the consequence of their action. That is, both of them have reached the stage at which they have been aware of the "regulatory" function, a function used by the children not only in controlling others but also adults in controlling children. This process, Halliday states, "happens indirectly, through the accumulated experience of numerous small events, insignificant in themselves, in which his behavior is guided and controlled, and in the course of which he contracts and develops personal relationships of all kinds" (Halliday, 1978, 9). Surely both Lulu and Nigel had such experiences of taking things directly and being stopped by their parents. So they change the modes of action from a direct one to an indirect one. That is to say, the children begin to be aware of what they can and what they cannot do, what is right and what is wrong. Once children begin to know the consequence of action, they become aware of the "patterns of living," or the social system. And it is from this moment the child becomes a social being.

Halliday says, "In the development of the child as a social being, language has the central role. Language is the main channel through which the patterns of living are transmitted to him, through which he learns to act as a member of a 'society' in and through the various social groups, the family, the neighborhood, and so on, to adopt its 'culture', its modes of thought and action, its beliefs and its values" (Halliday, 1978, 9). At the child's early stage of development, language does play an important role. But at the child's pre-speech stage, language (mainly here referring to the vocalized sign system) is the means mostly used by his parents or others to control and guide him, while what the child uses for communication is a series of nonverbal signs. It is the adult's action and language which shape the early model of the child's language system and make the child aware of the social consequences of his actions. Observations B3 to B5 indicate how language socializes the child, and on the other hand, how the child changes the modes of action in order to get the social reward.

(B3): Shanshan had sucked her thumb since she was two or three months old. Her mother often verbally stopped her doing that by saying, "Don't suck your finger, it's dirty." or "Take it out!" or, nonverbally, taking her thumb gently out of her mouth. What her mother did was in vain until Shanshan was ten to twelve months old. She would keep sucking and pretend not to hear what her mother said to her. At this moment her mother would walk nearer to her and raise her hand, nonverbally pretending to smack her. Then Shanshan would pull her thumb quickly out and hide it. But sometimes when her mother turned away she would put the thumb in again.

(B4): Shanshan liked to be taken out of the house to see people, bikes, cars and buses coming and going in the street. When she wanted to do that she would point to the main door with her hand and turn to her mother uttering "en, en..." Sometimes her mother would say "Kiss me, Shanshan" or "Have a dance, otherwise I won't take you out!" The child would do everything which she was asked to do in order to be taken out.

Later when she wanted anything she would first hug her mother or the babysitter and give them a kiss, instead of pointing to the door.

(B5): One day Shanshan's mother was putting some apples into the refrigerator. Shanshan (19 months) came over and asked her mother, "What are these?" although she already knew what an apple was by then. "Apples" her mother answered. "Shanshan likes apples," the child said. No response from her mother. After a few minutes Shanshan said, "Sure these apples are delicious." "Yes," said her mother, "but you can have one after supper, not now."

The event in B3 indicates the child's early awareness of the social consequence of action. She knows how to behave in order to avoid the "punishment." But she is still not aware of giving up her "wanting" to get the social rewards, until the negative consequence is threatened. In observations B4 and B5 the child becomes more skillful in expressing her meaning. She knows how to use the representative acts to work out the positive consequences in favor of the favorable responses of her parents.

These events illustrate the development of the child's ability to make meaning from a simple, direct, and nonsymbolic mode to a kind of complicated, indirect, and symbolic one. The child's actions in observations B1 and B2 are a sort of primitive lower level of "wanting," which are carried out mostly from an instinctive physical necessity or curiosity. But in observations A1, A2, B3, B4 and B5 the children's acts of "wanting" have reached a higher level, at which they have been able to communicate with the adults through symbolic acts of

representation. These acts according to Halliday, are "acts of meaning," which "differ from the pre-symbolic acts of the first weeks of life..." (Halliday, 1977a, 172). This process of children's acts developed from the lower level to the higher level has been accomplished under the guidance and the control of the people around them. And this influence not only determines the children's "specific awareness of language as a means of behavior control" (Halliday, 1977b, 5) but also shapes the children's acts and makes them aware of the social consequences of their actions and the social rules which they have to obey. So we may say that it might be at the stage when a child begins to be aware of the "regulatory" function that he, at the same time, begins to behave socially as well as to act as a social member.

Of course awareness of social consequences also can be acquired from interacting with others, as the following examples show.

(C1): For his speedy completion of a new jigsaw, Lulu was praised by his father who signaled the traditional Chinese right hand, thumb-up gesture meaning "first class." Also, he said, "Great, Lulu." As the boy did not notice, the father said, "Lift your head and see. You are this." The boy looked. The act of raising the head was thereafter used by the boy as a sign of expecting praise, even with people who did not comprehend its significance.

(C2): Lulu (age 14 months) gently pushed his grandmother to a corner of the yard by using both hands held at the small of her back. Then he ran back to his original place and closed his eyes, laughing lightly. The puzzled adult came back to the child who pushed her in the same way, returning to his place and closing his eyes. Speculating that the child was acting out the game of hide-and-seek, his grandmother began pretending to look for him anxiously. The child then laughed victoriously (Regan, Hong, & Zhou, 1987, 168).

These examples illustrate the pleasure and personal satisfaction the children receive from their interacting with others. They come to want the look, the touch, the sound, and the presence of others as much as they want the objects requested. In addition, it is in this process of noting the positive and negative consequences of their actions that children become social beings.

At this stage the use of signs develops out of a mimetic consciousness that guides the child to realize that the essential feature of the actions which he/she mimics will be understood. He does this first for "I want" purposes, and then not only to avoid the consequences but for the pleasure

of being with another person. This occurs presumably along the patterns of the development of Vygotsky's language and thought in which lines intersect and switches occur at times and during events that cannot be observed. However, eventually there is evidence of a choice being made to use an act not to get the object of physical want, but rather interplay with others. The developed form of such behavior in an adult accounts for an extraordinary number of actions that may continue over considerable time involving people and resources. They, in fact, change the course of life aims of those who initiated and those who were included in the interaction.

The purpose of such being together, the search for reasons for continuing to be together, becomes a dominant motive of much more adult activity than is assumed from a viewpoint of the human being as simply a seeker of his own wants. Such viewpoints that suggest that ultimately all behavior is simply a form of need satisfaction, do more than mechanize human relationships which we see developing at the moment at which Han is seeking evidence. In addition, they reduce the incentive to observe evidence of the development of this human characteristic (Regan, 1987, 6).

The transformation of children's behavior from a direct mode to an indirect one marks a great (as well as an important) leap in their stage of early development. That means they become members of society. When children begin to become social beings and begin to communicate symbolically and indirectly, they begin to become skilled in the use of signs. At the same time they begin to act on their knowledge of the pleasures and dangers of becoming a social being. It is the intention of the writer to pursue this study among Chinese children as they approach and enter the line of demarcation of the social being.

References

- Halliday, M.A.K. (1977a). One Child's Protolanguage, in Margaret Bulowa (ed.), Before Speech. Cambridge: Cambridge University Press, pp. 171-190.
- _____. (1977b). Explorations of the Functions of Language. New York: Elsevier North Holland.
- _____. (1978). Language as Social Semiotic. London: Arnold.
- Han, Xiao-fang. (1987). Unpublished paper to Sociolinguistics Course, Nanjing University.
- Regan, John. (1987). Unpublished presentation to special graduate seminar, English Department, Nanjing University, Nanjing.
- Regan, John, & Ziajka, Alan L. (1980). Observing the Native Doer: Prelinguistic Behavior Among Infants and Young Children, in F. Coulmas (ed.), Festschrift for Native Speaker, The Hague, Mouton, pp. 305-315.
- Regan, John, Hong, Xiao-ling, & Zhou, Shuming. (1987). Before Speaking - Across Cultures, in R. Steel & T. Threadgold (eds.), Language Topics: Festschrift for M.A.K. Halliday. Amsterdam: John Benjamins, pp. 163-175.

GENERATIONAL DIFFERENCES IN LANGUAGE: A CASE STUDY IN TURKISH*

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Linguistic research in Turkey is largely based on historical linguistics and the methodology of nineteenth century comparative linguistics. Because of considerable interest in folklore, most dialect work to date has emphasized collections of regional vocabulary (Caferoğlu 1946). *The Dictionary of Turkish Regional Folk Speech (Türkiye'de Halk Ağzından Derleme Sözlüğü)*, published in 1963-67, is composed of lexical items collected throughout the country by hundreds of volunteers, most without formal linguistic training. A few monographs dealing with the phonetic study of particular village speech communities have been published by Aksoy (1945-6), Ünsel (1945), and Korkmaz (1963). Thus, dialect studies of Turkish so far have been meager, and geographical, not social in approach.

Language in its social context varies because of many factors. The most common of these are due to 1) languages in contact, 2) dialects, and 3) register. By register is meant the study of language which can vary considerably even within a single idiolect. Martin Joos, in his classic, *The Five Clocks* (1962), describes the ways in which language can vary. Although the levels of style which Joos describes: frozen, formal, consultative, casual, and intimate; have been used by a number of linguists recently in describing register, little has been done with Joos's scale of age: senile, mature, teenage, child, baby. Joos writes, "age is the frame within which all scales develop. Though this is the most important of them all, we shall have very little to say about the age scale of use because nothing can be done about it directly" (p.11). In other words, speakers do not switch between age levels as between styles. To do so is considered abnormal behavior and not socially acceptable.

Age has been recognized as an important potential area of

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study as can be seen in the collection of data for the Linguistic Atlas of the United States and Canada Project (Kurath 1939) where two different age levels of informants were used: Type I, over 70; and Type II, middle aged, roughly corresponding to Joos's mature and senile age levels. To my knowledge, the only study using age levels, and this within a family setting, is Mock's "Phonological Change in an Ozark Family" (1981), where she cites statistical data in the use of allophone variants between family members of four generations.

In order to discover age differences and at the same time to document the geographical dialect of a community, a study of the speech within one three-generation family in a Turkish village was undertaken. Located near the Black Sea, the Turkish village of Vardelli is in the province of Trabzon (Bucak : Beşikdüzü; İlçe : Vakfıkebir). Situated on the route of Jason of the Golden Fleece and Xenophon's Army of 10,000, the area is rich in history. Indeed, a late nineteenth century edition of the *Encyclopaedia Britannica* mentions that about half of the population of the provincial capital, Trabzon, were of Greek origin and spoke Greek. Other ethnic groups in the area are Laz, speakers of a Caucasian language, who settled along the seacoast, and Armenians, speakers of an Indo-European language. Today, the inhabitants of Vardelli consider themselves ethnic Turks and are not aware of any cultural diversity in their history.

In Turkish villages there are frequently extremes of education; in Vardelli, for instance, from illiteracy to a Ph.D.; although the highly educated usually return only to visit or retire. Turkish dialects vary consistently more than English ones since there is little pressure to conform to a standard such as Istanbul, or radio/TV announcers. Indeed, villagers take pride in their own speech patterns and usually do not consciously try to conform to a standard dialect.

The area is one of geographical barriers: high mountains gradually descending to the Black Sea. These mountains are cut inward by valleys so steep (usually with creeks running down to the sea), that all communication follows a vertical path from the sea to the foothills to the high mountains. Even houses in the villages are lain vertically along one path that leads up the mountain. Different local dialects develop even

across stream banks because communication does not proceed horizontally, but vertically.

Verdelli is a village of about 25 houses in the mountain foothills. A road leading up to the village from the coastal town of Beşikdüzü is steep, full of rocks and navigable only by jeep. Walking to Beşikdüzü, the market for what is not produced by the villagers themselves, takes about an hour. Growing filberts is the main economic source. The village has an elementary school, and those wishing to attend a middle school may attend one in Beşikdüzü. For high school, a few villagers ride the bus to the provincial capital of Trabzon. Although men learn to read and write on a rudimentary level in compulsory military service, women may be illiterate. Education beyond elementary school is not particularly encouraged.

QUESTIONNAIRE

A questionnaire was developed of 193 lexical, phonological and syntactic items which potentially deviated from Standard Turkish. Items were culled from two sources-- an anthology of Northeast vocabulary published by Caferoğlu (1946) and preliminary interviews in the village to determine additional items of interest.

I. Personal Data Sheet

II. Items (193)

Months, holidays, time	Items 1-22
Animals	Items 23-56
Family/household	Items 57-86
Food	Items 87-107
Clothing	Items 108-117
Miscellaneous (includes particular phonological, morphological, syntactic or lexical variants that did not fit conveniently into categories).	Items 118-193.

In addition to the questionnaire, a cue sheet was developed to aid the interviewer in eliciting the items.

INFORMANTS

The informants were selected from a family well-known to the interviewer over a period of twenty years. They consisted of:

1. First generation: male, age 70, farmer, resided in village except for two years in compulsory military service. Illiterate, no formal education.

2. Second generation: female, age 49, housewife-farmer, resided in village whole life. Now lives on village road at sea level. Functional illiterate, two years elementary school education. Daughter of the first generation informant.

3. Third generation: male, age 19, student, resided in village whole life. Now lives on the village road at sea level. Third year high school student. Son of the second generation informant.

INTERVIEWS

The informants were interviewed over several hours, usually not all at one time period. The interviewer recorded the responses phonetically, and tape recorded the interviews to allow for cross-checking. In addition to the questionnaire, each informant was asked to tell a folk tale and relate an instance in which his/her life was in danger.

SYNTAX

The Vardelli dialect makes use of a number of syntactic morphemes that differ from Standard Turkish. On the whole, these are phonological variants.

1) *-(i)len*, *(i)len* 'with', postposition as in *bizilen* or *bizlen*, 'with us.' This reflects an historically older form. Standard Turkish uses *-(y)le*, *-(y)la*, the two forms depending on vowel harmony.

2) *-den, -dan* 'from' postposition. The form always has the voiced dental stop, unlike Standard Turkish which assimilates to a voiceless stop if following a voiceless consonant.

3) *-(e)cam, -(a)cam*, future morpheme, first person. This form reflects phonological simplification as Standard Turkish uses *-(e)ceğim, -(a)cağım*.

4) The following interjections occur in casual speech.

4a) *he*, used as an intensifier, accusingly, with falling intonation.

Bunu yaptın, he! 'you did this, didn't you?'

4b) *he*, a question signal with rising intonation, to repeat what is said. *Lobut ne demek? He?* 'What does lobut mean? What did you say?' comparable to English, *huh?*

4c) *ha*, 'yes', or in answer to a call. *Meryam! Ha!* 'Meryam. Yes?'

4d) *aha*, an attention pointer with pronomial reference, meaning 'yes, that's the thing I was talking about.'

4e) *ha*, an intensifier used before demonstrative pronouns, usually *o*, 'he, she, it'. *Ha o tabağı getir baa.* 'Bring that (distant) particular plate to me,' or as in *ha bu getir baa*, or *ha şu getir baa*, 'bring this (close) plate to me,' or 'bring that (mid distant) plate to me.'

4f) *ba*, an emphatic interjection usually denoting a slightly derisive sentiment. *Gitmedin be!* 'You didn't go (that makes me angry).'

5) Phonological simplifications of the dative singular pronouns. These reflect a loss of an intervocalic nasal.

5a) *baa* < *bana* 'to me'

5b) *aaa* < *ona* 'to him'

5c) *saa* < *sana* 'to you'

The result is a long vowel which is of interest since in the Turkish vowel system long vowels do not normally occur.

Generational differences in these syntactic variants are seen in two instances. The first and second generation use the

simplified dative personal pronouns, but not the younger third generation. In addition, the simplified future tense form is used only by the first generation.

PHONOLOGY: CONSONANTS

1) Most prominent in the deviation of the Vardallı dialect from the Standard Turkish is change in the voicing of stops.

1a) dental stops: these exhibit occasional voice changes, generally becoming voiced initially or after voiced consonants.

düdüñ < tütüñ, dirben < tirben, mindan < mintan, yidik < yitik. It occurs across generations.

1b) labial stops: these show a frequent tendency toward devoicing in initial positions: *panti < banhti, pulut < bulut, pıaktım < bıraktım, Piçim < Biçim, pıçak < bıçak, peşik < beşik, pileki < bileki, paklanmak < baklanmak*. It occurs in the first and second generations, rarely in the third generation. The opposite, voicing of voiceless labials, occurs occasionally in the first generation in intervocalic position: *sebet < sepet, kapu < kapı*.

1c) velar stops: as with the labial stops, the voiced velar tends to devoice initially. This is most frequent in the first and second generation, and only occasionally in the third generation: *kün < gün, kübre < gübre, kıldık < gıldık, küllük < güllük, köl < göl, kuşluk < guşluk, kuyrul < guyrul, kirebi < gireb, kendeme < gendeme, kukkul < gugula*. Two words were devoiced medially: *arkuri < arguru* and *ebekuşa < ebeguşa*.

2) Other voicing and devoicing occurs, but is much rarer than with the stops: *çuharlamak < çuharlamak, çavramak < çavramak, kuçi < kuci, gecı < keci, çan < can*. These occur more often in the first and second generation informants. Although either change can occur in intervocalic position, only initial sounds become devoiced.

3) A change of *r < z* in *ırak < uzak* reflects rhotacism, an historical trend in a number of Turkic languages. This form

occurs regularly in the first and second generation, but is reported as found in mature and senile speech by the third generation informant.

4) The trend in changing a voiceless velar stop to a voiceless velar fricative appears not to be relegated to a particular word but is an occasional occurrence in post-vocalic or final position: *ayaxlı* < *ayaklı*, *şaxa* < *şake*, *yax* < *yak*, *maxas* < *makas*, *axlıma* < *aklıma*. It occurs in the speech of all generations, but most frequently in the third generation.

5) The change of a dental nasal to a velar nasal occurs only in the first generation: *sanra* < *sanra*.

6) The change of a velar voiced stop to the palatal glide /y/ in *yelek* < *gelek* occurs in the first generation.

7) Consonantal metathesis of *rb* < *br* occurs in the first generation: *kirbit* < *kibril*. A probable metathesis leading to the velar fricative is seen in *firaati* (second generation), *firaati* (first generation) < *fikradı*.

8) An excremental consonant occurred in *şanık* < *şan*, of the first generation speaker.

9) Most consonantal loss was found in the first generation. Here medial consonants were lost in *tusuz* < *tuzsuz*, *daa* < *daha*, *maana* < *mahana*, *şikaat* < *şikayet* and a loss of an initial consonant in the first generation informant: *e* < *he*, *ukarı* < *yukarı*. In *ula* < *ulan*, the nasal is dropped, this occurring in the first and second generation.

PHONOLOGY : VOWELS

Vowel harmony is an important aspect of Turkish. Standard Turkish has the following vowel system:

	Front	Front	Back	Back
	Unrounded	Rounded	Unrounded	Rounded
High	i	ü	ɪ	u
Low	e	ö	a	o

According to the vowel in the root syllable, there are two types of morphophonemic harmony for suffixes, Type I: the following vowels must agree in place of articulation and rounding. In Type II, which governs certain syntactic morphemes, vowels must agree in place of articulation, but the non-root vowel is always unrounded. These rules apply to words of Turkic origin. Foreign borrowings sometimes adapt to the harmony, yet sometimes retain their original vowel, e.g. *mektup* < Arabic..

1) Fronting: Examples of fronting usually involve adapting foreign loan words to Turkish vowel harmony: *kiraz* < *kiraz*, *sifte* < *siftah*. Others occur in the unrounded back vowel, which appears to have a weakened status in the Vardalli dialect, often being fronted or rounded: *yarıntası* < *yarıntası*, *fırahtı* < *fıkradı*, *yeli* < *yeli*, *çayır* < *çayır*, *çamaşır* < *çamaşır*. This happens mostly in the speech of the first and second generation speakers. One other example of fronting occurs: *lahana* < *lahana*, probably influenced by a phonetically light /i/. This was in the first generation speaker.

2) Backing: Most examples of backing occur in non-initial syllables and are examples of adhering to the vowel harmony of the initial syllable; they are in the speech of the first generation informant: *tarnek* < *tarnek*, *şuşak* < *şişek*, *sazcu* < *sözcü*. The form *arkuru*, deviating from standard *aykırı* represents an archaic form.

3) Rounding: Of greatest importance in this dialect, and often cited as a shibboleth, is the rounding of /i/ to /u/. As mentioned before, the high unrounded back vowel is apparently quite unstable. This type of rounding is quite frequent, but occurs only in the first and second generation: *funduk* < *fındık*, *baluk* < *balık*, *musır* < *misir*, *kabu* < *kapı*, *açuk* < *açık*, *altun* < *altın*, *artuk* < *artık*, *furtına* < *firtına*. Other examples usually preserve the front or back position: *yulaf* < *yulaf*, *beşük* < *beşik*, *onuk* < *enuk*, *kämre* < *kemre*, *kurbao* < *kurbaga*. The exception is *şuşak* < *şişek*. These types of rounding also occur only in the first and second generation.

4. Unrounding: This process is not very frequent, yet occurs

with all informants: *haşafle/haşafle < haşofla, çamber < çamber, bilbil < bülbü, enik < enük, ebür < öbür, eyle < öyle*.

In conclusion, the Vardelli dialect is characterized most prominently by the rounding of the high back vowel /ɪ/ and the devoicing of initial stops. Although the first generation informant shows instances of velarization of the nasal, metathesis and loss of initial consonants, these are limited to specific vocabulary items. Of greater importance are the shared features of the first and second generation: devoicing of initial stops, vowel fronting and vowel rounding. The pronunciation of the third generation speaker closely resembles Standard Turkish.

LEXICON

The lexicon presented here was gleaned from Ahmet Caferoğlu's list of Trebzon dialect words (1946). They were first tested as to expected occurrence, then each informant was given a definition or a sentence completion in order to generate the item. All items were also checked in the *Derleme Sözlüğü* and compared with Standard Turkish. The items are listed according to Caferoğlu's orthography. Where the village pronunciation was consistently different, it follows in parenthesis.

Word	Definition	Informant Use
1. aba	'short jacket'	1,2,3
2. Abril ayı	'April'	1,2 -
3. aḡun	'manure'	1,2,3
4. ala	'multicolored'	1,2,3
5. andirana	'orange cherry like fruit'	1,2,-
6. arguri (arkuru)	'straight, level'	1,2,3
7. arma	'cartridge pack'	1,2,3
8. aşana	'kitchen'	1,2,3
9. aus	'first cow's milk after a newborn'	1,2,3
10. banhtı	'feeding place for cows'	1,2,-
11. bayak	'just now'	1,2,3
12. bezleme	'cornbread'	1,2,3

13. bibi	'father's sister'	-2,-
14. Bigim	'October'	-2,-
15. bileki	'rock used for cooking bread'	1,2,3
16. cuharlamak	'to become ill, feverish,	1,2,3
17. çilim(cilim)	'fellow clay soil'	1,2,3
18. çabula	'men's pointed shoes	1,2,3
19. çan	'bell for sheep'	1,2,-
20. çavramak	'to act, behave'	1,2,-
21. çimmek	'to clean with water'	1,2,3
22. çimdirmek	'to clean something with water'	1,2,-
23. çinci	'religious man, shaman'	1,2,-
24. civi	'knitting needles'	1,2,3
25. çömber	'thin headscarf'	1,2,-
26. darı	'corn, or ear of corn'	1,2,3
27. dayfa (toyfa)	'neighborhood group'	-2,3
28. düve	'3 yr. old calf'	1,2,3
29. ebeguşa(ebekuşa)	'colorful sky at sunset'	1,2,-
30. enük	'baby dog'	1,2,3
31. ferik	'young chicken'	1,2,3
32. fırakdı	'shelter in the fields with a fireplace'	1,2,-
33. fik	'wild lentil used as feed'	1,2,-
34. fistan	'ladies' dress'	1,2,3
35. gelek (yelek)	'cabbage leaf'	1,2,-
36. gendeme	'meat boiled with barley and wheat'	1,2,-
37. gıdık	'basket for eggs made of filbert husks'	1,2,3
38. gugula (kukul)	'men's headscarf'	1,2,3
39. gula	'animal with red spots'	1,2,-
40. guşluk (kuşluk)	'time between morning and noon'	1,2,3
41. guyrul (kuyrul)	'cow with white tipped tail'	-2,-
42. güllük (küllük)	'grass used as greenery with flowers'	1,2,3
43. hapsodo	'dish with greens, corn, vegetables'	1,2,-
44. haşofla	'lizard'	1,2,3
45. harar	'large basket'	1,2,3
46. hısır	'left overs, rag'	-2,3
47. hozan	'fellow field'	1,2,-
48. irak	'far'	1,2,3
49. ıfteri	'grass used as greenery with flowers'	1,2,3
50. istavit	'September'	1,2,-
51. ışık	'outer shirt'	1,2,3

52. işaret etmek	'to gesture'	1,2,3
53. kalender	'January'	1,2,-
54. Karakış	'December'	-,2,3
55. karayemiş	'cherry laurel/mulberry'	1,2,3
56. keltek	'a goof-off'	1,2,3
57. kemre	'manure'	1,2,3
58. kerendi	'tool to cut tea'	1,2,3
59. kestanise	'bright yellow edible mushroom'	1,2,-
60. kete	'bread roll'	-,2,-
61. keveze	'small bell for animals'	1,2,-
62. keyfane	'old woman at home'	1,2,3
63. kırkayak	'crab'	1,2,3
64. Kiraz ayı	'June'	1,2,-
65. kirebi	'axe for cutting wood'	1,2,3
67. Küçük ay	'February'	1,2,-
68. lobut	'bat shaped piece of wood'	1,2,3
69. mahana	'fault'	1,2,-
70. maraba	'farm supervisor or middleman'	1,2,3
71. marahta (malahta)	'dish with dried beans and leeks'	1,2,-
72. mereç (merek)	'pile of fodder near house'	1,2,3
73. mesasol	'manure piling place in fields'	1,2,-
75. Orak ayı	'July'	1,2,-
76. piştov (piştov)	'pistol'	1,2,3
77. sifde (sifte)	'at once'	1,2,3
78. şima	'stone part of house'	1,2,3
79. şışek	'sterile/virgin sheep'	1,2,-
80. taflan	'cherry laurel/mulberry'	1,2,3
81. taster	'small wool rug'	1,2,3
82. tay	'burden or pack on one side of an animal (lopsided)	1,2,-
83. ternek	'family meadow festival'	1,2,-
84. tirpan	'tool to cut tea'	1,2,3
85. toklu	'lamb between 6 mo. and 1 yr.'	1,2,3
86. top pancar	'white cabbage'	1,2,3
87. tosun	'3 yr. old male calf'	1,2,3
88. ulan/ula	'boy'	1,2,3
90. uşak	'boy'	1,2,3
91. Üzüm ayı	'November'	-,2,3
92. yallık	'feed corn'	1,2,3
93. yarıntası	'day after tomorrow'	1,-,3

94. yemeni	'ladies' pointed village shoes'	1,2,-
95. yitik	'loss'	-,2,3
96. zipka	'men's trousers'	1,2,3
97. zibil	'dustballs'	1,2,3
98. zimlanka	'variety of plant eaten in winter'	1,2,-
99. zorafina	'cherry laurel/mulberry'	1,-,-
100. zuleyda	'a kind of grass'	1,2,-

Of the hundred vocabulary items studied, 53% were common to all three informants which shows that the youngest informant is certainly not divorced from the village dialect. 34% were common only to the first and second generations. This indicates that although the area has common dialect features across all ages, it is the two older generations that preserve most of the dialect forms, with 67 % occurring. This shows that the greatest difference is between the two older generations and the youngest generation. Thus, a great number of traditional dialect forms are retained by older members of a speech community. Although the questionnaire was not designed to test neologisms, one that occurred, *yani* 'answer' for the earlier *cevap* was known only by the youngest informant.

A cursory glance shows that a number of lexical items are etymologically Greek, certainly attesting to the previous Greek influence in the area. These include: *Abrii ayi*, *Kiroz ayi*, *taflan*, *istavit*, *fik*, and probably a good many more. It is interesting that very few of the words (three percent) were known only to the oldest informant.

Some of the items familiar, but not used by the the third generation informant were labelled as vulgar, old fashioned or village talk. These words were: *keyfane*, *irak*, *kuçi*, *saa* (*sana*), *baa* (*bana*) and *aa* (*ana*).

CONCLUSION

From the point of view of geographical linguistics, the speech community of Vardalli has maintained its separate identity through individual lexical items, particular phonological developments: the rounding of the high back vowel, devoicing initial stops, and the syntactic

morphemes *-cem*, *-den/-dan*, *baa*, *aa*, *saa*, and the emphatic pronouns.

The following chart shows a summary of the adherence to dialect forms.

ADHERENCE TO DIALECT FORMS

SYNTAX

SENILE	100%
MATURE	80%
TEENAGE	60%

PHONOLOGY

SENILE	100%
MATURE	54%
TEENAGE	31%

LEXICON

SENILE	91%
MATURE	98%
TEENAGE	60%

In examining how these are spread throughout three of Joos's age categories- senile, mature, teenage - we see that senile and teenage speech share only a few features, but there is a wealth of common dialect characteristics between mature and senile speech. The fact that the mature speaker knows more dialect words is probably because as a woman, she was more acquainted with the household and kitchen terminology. The teenager shows greatest adherence to the standard language. He is also more aware of the social aspects of language, deliberately avoiding some of the lexical items he considers village talk. The chart statistics give additional emphasis to the intuitive sense that in a culture, the impetus for change is in the younger generation.

Turkish offers a wealth of opportunity for basic linguistic study. It is also hoped that further linguistic studies throughout Turkey will provide a more thorough understanding of the dialects of the country.

Acknowledgements and Notes

1. Lexical items are presented in Turkish orthography which has the following graphemes:

c = /ç/

ç = /ç/

ş = /ş/

g = compensatory vowel lengthening or an orthographical buffer between vowels.

ı = /ɯ/ high back unrounded vowel.

2. I wish to thank the Republic of Turkey for permission to conduct research while I was a Fulbright senior lecturer there.

3. Prof. Osman Nedim Tuna deserves additional thanks for inspiring me in the study of Turcology.

SUMMARY OF LINGUISTIC CHARACTERISTICS

SENILE – first generation

syntax

1. future tense: *-(e)cem, -(a)cam*
2. dative singular pronouns: *baa<bana* 'to me', *aaa<ona* 'to him', *saa<sana* 'to you'
3. interjections: *he*, intensifier; *he*, question signal; *ha* 'yes'; *aha*, attention pointer, *ha*, intensifier before demonstrative pronouns; *be*, emphatic.
4. post-determiner: *-den, -dan*: *Ürgüp'den* 'from Ürgüp'
5. post-determiner: *-(i)len, -(i)lan*: *bizilan*, 'with us.'

phonology

1. change of dental nasal to a velar: *sonra<sonra*
2. change of velar voiced stop to palatal glide: *yelek<gelek*
3. consonantal metathesis: *kirbit<kibrit*
4. excrescent consonant: *çank<çan*
5. consonantal loss: *ula<ulan*
6. devoicing of initial stops: *Piçim<Biçim*
7. voicing of dental stops: *dirban<tırpan*
8. rhotocism: *ırak<uzak*
9. change of voiceless velar stop to fricative: *maxas<makas*
10. fronting of vowels: *çamaşır<çamaşır*
11. backing of vowels: *tarnak<ternek*
12. rounding of vowels: *funduk<findık*
13. unrounding of vowels: *bilbil<bülbül*

lexicon

1. unique to first generation: 3%
2. unique to first and second generation: 34%
3. total dialect words shared with at least one other generation: 87%

MATURE – second generation

syntax

2. dative singular pronouns
3. interjections
4. post-determiner *-den, -dan*
5. post-determiner: *-(i)len, -(i)lan*

phonology

5. consonantal loss
6. devoicing of initial stops
7. voicing of dental stops
9. change of voiceless velar stop to fricative
10. fronting of vowels
12. rounding of vowels
13. unrounding of vowels

lexicon

1. unique to second generation: 4%
2. unique to second and first generation: 34%
3. unique to second and third generation: 5%

TEENAGE - third generation**syntax**

3. interjections
4. post-determiner: - *den*, - *dan*
5. post-determiner: - *(i)len*, - *(i)lan*

phonology

6. devoicing of initial stops
7. voicing of dental stops
9. change of voiceless velar stop to fricative
13. unrounding of vowels

lexicon

1. unique to third generation: none
2. unique to third generation and second generation: 4%
3. unique to third generation and first generation: 1%

References

- Aksoy, O.A. (1945-46). *Gaziantep Ağzı*. İstanbul: Türk Dil Kurumu.
- Caferoğlu, A. (1946). *Kuzey-Doğu İllerimiz Ağızlarından Toplamalı*. İstanbul: Türk Dil Kurumu.
- Emre, A.C. (1949). *Türk Lehçelerinin Mukayeseli Grameri I: Fonetik*. İstanbul: Türk Dil Kurumu.
- Hazai, G. (1971). "Turkish," in T. Sebeok (ed.), *Current Trends in Linguistics, vol 6*, pp. 183-216. The Hague: Mouton.
- Joos, M. (1962). *The Five Clocks*. New York: Harcourt, Brace, Jovanovich.
- Korkmaz, Z. (1963). *Nevşehir ve Yöresi Ağızları*. Ankara: Ankara University.
- Kurath, H. (1939). *Handbook of the Linguistic Geography of New England*. Providence: Brown University Press.
- Lees, R. (1961). *The Phonology of Modern Standard Turkish*. Bloomington: Indiana University Press.
- Mock, C. (1981). *Phonological Change in an Ozark Family: Results of a Four-Generation Study*. unpub. paper presented at Modern Language Association Annual Meeting.
- Türkiye'de Halk Ağzından Derleme Sözlüğü. (1963-67). Ankara: Türk Dil Kurumu.
- Ünsel, İ.E. (1945). *Urfa Ağzı*. İstanbul: İstanbul University.

X

WRITTEN LANGUAGE

ORTHOGRAPHY AND STANDARD PRONUNCIATION

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For all the difference between speaking and writing, these two skills go together in the adults of any literate society. And in most languages, whose script is based -- at least historically -- upon a practical if somewhat incomplete identification of the distinctive sounds, there is inherently a detailed relation between what is pronounced and what is written. This relation, however, is liable to be much obscured in certain languages, of which English and French are notorious examples, as the orthography is more and more at odds with the pronunciation.

Even in the earliest English, over a thousand years ago, the peculiar phonology -- especially the complex vowels -- overtaxed the Latin alphabet, which the Christian missionaries had brought to the Angles and Saxons. Then, in the disturbed history of the language after the Norman conquest, the spelling of English words was compromised by inconsistent and confusing makeshifts. Meanwhile the sounds of English went on changing much more rapidly than the customary representation of them by letters.

An occasional scholar in England worried about orthography, for which there was a strong model in Latin since ancient times but unfortunately not a very helpful model, because of the radical differences in phonology. Only toward the end of the seventeenth century did a corps of teachers, authors, and printers move effectively toward uniformity in spelling, to replace the long-standing anarchy; and even so, no real reform, far-reaching and well thought out, was feasible. The dictionaries that emerged in the eighteenth century were, at best, mere codifications of whatever spelling for each word seemed to be most widely used. Any alternative spellings, although more or less familiar until then, were tacitly excluded from dictionaries, and discouraged by teachers, if not rejected outright.

The most literate stratum of the English community achieved a remarkable consensus, with no official action whatever. In the seventeenth and eighteenth centuries several proposals for an academy like the ones in France and Spain, to regulate the national language, failed of implementation.¹ Moreover experience both in Britain and in America has proved it unnecessary for the government to do anything about the English language. The government, to be sure, conformed to the usage of educated people, as its own staff consisted of such people. Gradually it has put more and more of its revenue into schools, and so in a sense it does indirectly support a certain orthography, along with the rest of the curriculum. But English orthography has never been a

political issue.

It is hopelessly out of line with the pronunciation of English. Standards of pronunciation are somewhat less precise, on the whole, and more variable from one region to another. But nowhere, for the last four centuries or longer, has English spelling represented anyone's pronunciation closely or simply. Those who learn to spell systematically, rather than each word individually, have had to get used to a multitude of patterns, of which hardly any can be relied on altogether. Some resourceful teachers would think up a mnemonic jingle, such as

"i before e
except after c
or when sounded like a
as in *neighbor* and *weigh*."

Any method leaves a residue of hundreds of words with some letter unaccountably silent (unless the learner traces the etymology) or some other irregularity. So for most people correct spelling and correct pronunciation are two separate things in practice, although it goes against the grain to accept this in principle -- given that the alphabet has always been commended for making a language readable by picking out the sounds of each word.

As a result of the poor fit in English, most adults who have gone through years of schooling still misspell many familiar words or confuse homophones, unless they take the trouble to look them up, and they blunder in pronouncing unfamiliar book-words. A number of amateur and professional scholars have struggled to reform the spelling more or less drastically, removing its ambiguities and inconsistencies, so that it should dependably convey the sounds of each word. But no matter how well devised or how admirable in the abstract, those schemes never get adopted. All that we have to show for so much effort is the sporadic acceptance of *tho* for *though*, and *thru* for the preposition *through* (but not for the verb *threw*).

In the opposite direction, what is termed spelling pronunciation has affected a somewhat larger part of the English vocabulary, including items close to the core of it. *Host* and *hostel* from Old French, as well as *hotel* from modern French, were brought into English with no initial consonant pronounced; but some conservative French scribes had kept the letter *h* from the ancient Latin etymon; and within English, thanks to the spelling, the letter has come to be pronounced again. In the last hundred years the silent *-t-* in *often* has been gaining a new life on the tongues of many. Proper names seem particularly liable to a spelling pronunciation. Even the famous city of Rome [-u-] succumbed in the English of the nineteenth century to the replacement of its long-established vowel-sound [-u-] with the sound [-o-], suggested by the spelling with *-o-* and the silent *-e* at the end.

These are marginal reconciliations that leave the rest of the incongruities in English unadjusted. To study how orthography can promote a particular norm of pronunciation and then check deviations from it, we must turn to other languages, whose graphemes nearly match their phonemes.

Among the modern languages of Europe, Spanish stands out for its relatively uncomplicated, rational spelling. The Real Academia Española, privileged in 1714, has done its work well; the task was manageable, in the first place, because the sounds had diverged not too much from those represented by the classical Latin orthography more than a millennium and a half earlier. So that ancient script afforded a usable base for the writing of this conservative Romance language. Spanish spelling has been a judicious, eminently practical compromise between the Latin heritage and a rigorous phonemic notation, which would have repelled the educated people of Spain, schooled as they were in Latin.

While foreigners have naturally but loosely referred to the predominant language of the peninsula as *Spanish* (or *espagnol*, *spagnuolo*, etc.), within Spain until rather recently it has been called *castellano* with greater accuracy.² The Castilians, occupying a central position in the kingdom politically as well as geographically, expected any other Spaniard to speak their language as best he could; parity was out of the question. But in the rest of Spain, and overseas, Castilian was learned without a perfect Castilian pronunciation. The Castilian orthography was more easily and willingly established throughout Spain and in the Americas, although the discrepancies between it and non-Castilian pronunciation are bound to engender misspellings.³

In southern Spain and parts of the New World the *-s* at the end of a word is generally weakened, or dropped altogether. At the latter extreme this entails many neutralizations of the contrast between singular and plural, so that -- for example -- [lam'ano] can mean not only 'the hand' as in Castilian (*la mano*) but 'the hands' (*las manos*). From the Castilian point of view, not pronouncing the *-s* is intolerably sub-standard, even though entrenched among millions of speakers of Spanish. Most of them are in countries independent for many generations; so the dropping of the *-s* extends even to highly literate persons, who vaguely respect the Castilian model but are not in close touch with it and honor it in the breach (to misquote Hamlet).

The weakening of the *s* seems to have been triggered by an earlier neutralization that made this phoneme excessively frequent outside of Castile, and hence vulnerable according to "Zipf's law".⁴ After the Latin [k] followed by a front-vowel became [ts] nearly throughout western Romance, the affricate was simplified in most of the region to a plain sibilant [s]. Only in Castile did this not result in a merger with the *s* inherited from Latin.⁵ Instead the Castilian of the late middle ages was probably developing a front [S] opposed to a back [ʃ].⁶ In time the front [S] was effectively differentiated as an interdental fricative [θ]. But this consonant is notoriously difficult or unwelcome unless you are used to it in your native speech.⁷ Outside of Castile not very many took it up even while acquiring Castilian. The failure to pronounce [θ] in opposition to the sibilant [s] is now termed *seseo*, from the obvious case of calling the third letter of the alphabet [se] instead of [pe].⁸ Although a comparatively small part of the Hispanic world maintains in speech the distinction ex-

emplified by *ciento* [p-] 'a hundred' and *siento* [s-] 'I feel' or by *haz* [-p] 'faggot' and *has* [-s] 'you have', yet the Castilian [p] remains prestigious on its home ground. The orthography backs it up, and it does not appear to be receding.

In one noteworthy detail the orthography is contrary to Castilian phonology, and the consequences are curious. The Latin semivowel *u*, except in combination with another consonant (*qu*, *gu*, *su*), changed throughout Romance to a fricative, generally the labio-dental [v]. In Castilian the fricative, whether it was labio-dental [v] or bilabial [ɸ], went on to merge with [b] from several Latin sources, so as to yield one phoneme with two positional allophones: a bilabial plosive and a bilabial fricative. The Castilian scribes, before the time of the Academia, were inclined to use the two letters for the plosive and the fricative respectively; e.g.

beue 'he/she drinks' (< *bĭbit*)

biue 'he/she lives' (< *uĭuit*).

A strictly phonemic analysis would have fastened upon the letter *b* for both allophones, to the exclusion of the other letter.⁹ But a quite different rule, along the lines of etymology, was gaining ground even before the founding of the Academia: As much as possible, use the same letters as in Latin; hence *bebe* but *uiue*. Where the sound is from a Latin *p*, write it *b* as in *sabe* 'he/she knows' (< *sapit*).

Around that time the two shapes *u* and *v* of the same letter were being differentiated by more and more writers and printers according to the rule of the French Latinist Petrus Ramus (Pierre de la Ramée): the angular shape where a fricative consonant is pronounced, otherwise the rounded shape.¹⁰ This was formulated in the middle of the sixteenth century but embraced by few until the seventeenth. In Latin, for which he intended it as much as for French, it was disastrously misleading; in our time the Latin scholars who understand the facts are still struggling uphill to get rid of the angular minuscule *v* and the rounded capital *U* that have no authority -- ancient or medieval. But Ramus's distinction served French and other modern languages better. As applied to Spanish, it entailed the writing of *vive*, *aves* 'birds' (from Latin *auēs*), *vas* 'you go' (from *uādis*), etc.

The orthographic distinction between *v* and *b* blurred the standard of Castilian pronunciation. On this one point it put the Castilians at a disadvantage, next to the Catalans and certain others whose native tongue maintained a voiced labio-dental fricative in contrast to the bilabial plosive. The very orthography of the Castilian language was apparently inviting them to carry over this labio-dental fricative into their pronunciation of Castilian. The learned among the Castilians, on the other hand, felt hard put to justify their habit of pronouncing *vive* with the same consonant sounds as *bebe*. The Academia in the nineteenth century treated the neutralization as a fact and at the same time a defect: "en gran parte de España es igual, aunque no lo debiera, la pronunciación de la *b* y de la *v*."¹¹ Even if the dispute over a different pronunciation for the letter *v* was mostly on paper, it lasted into

the twentieth century. It may not be entirely past in Spain,¹² although elsewhere the matter is long since settled: no difference in sound between *b* and *v*, just as there is no difference in sound between *s* and *z* or *c* before a front-vowel.

The regional disparity within Spain can be paralleled by the treatment of *wh* in Britain. For two centuries, at least, the most prestigious pronunciation of southern England has reduced the aspirate, voiceless semivowel, inherited from prehistoric Germanic, to a plain [y], so that the erstwhile *which* is pronounced the same as *witch*, and the prince of *Wales* can be humorously misinterpreted to be the prince of *whales*. In the United States the same neutralization has been spreading more and more in our time; but within Britain it never reached the Scottish dialects nor the English spoken in Ireland. For the Scots a perfect command of standard English is an essential goal of education -- no less than the non-Castilians in Spain are determined to master Castilian; but many Scots, whether teachers or public speakers, draw the line at pronouncing *wh* the same as *w*. The orthography of English, however confusing in numerous respects, is unambiguous here, and it supports them. It is even reported that their [w^h] has regained some ground in the schools of England.¹³

One further remark about Spanish: Another of the voiced fricatives [ð], as in *cantado* 'sung' (from the Latin *cantatum*), is very liable to be reduced to zero.¹⁴ If not for the orthography, this phonetic change might even have gone through completely, as it did in Old French about a thousand years ago, when that language was hardly ever written by anyone. But orthography is now blocking such a development in Spanish, at least to this extent: [kant'ao], no matter how widespread, is still regarded more or less as sub-standard, casual or vulgar; the older pronunciation [kant'ado], by virtue of its adherence to the spelling, seems in no danger of disappearing altogether.

Whether orthography influences pronunciation much or little depends on various circumstances that constitute a cultural network. The orthography of Italian was devised to show just how the vernacular of Tuscany, and especially of Florence, has diverged in sound from Latin (as pronounced in the schools of medieval Italy). Thus the spelling *tuona* 'it is thundering' contrary to the Latin *tonat*, and *teme* 'he/she fears' contrary to the Latin *timet*, *piace* 'it pleases' contrary to the school Latin pronunciation *placet* [-č-],¹⁵ showed neatly how the *lingua volgare* differed. Literate people all over Italy, without any political centralization, gradually agreed on one standard form of the *volgare*, based on the actual dialect of Tuscany, northeastern Tuscany in particular. Among other advantages, Tuscan manifested the clearest relation to Latin, which was then considered not so much the source language as the superstrate.

The orthography has a major defect: only five vowel letters for the seven vowel phonemes of Tuscan. So *venti* [-e-] 'twenty' is spelled the same as *venti* [-e-] 'winds', and *volto* [-o-] 'face'

the same as *volto* [-ɔ-] 'turned'. Outside of Tuscany the phoneme distinction gained fairly general adherence in Rome, but much less in the rest of Italy; for it was not native to most of the dialects, nor was it inculcated by anything in the orthography.¹⁶

An influential sprinkling of orthoepists throughout Italy has always admired the true Florentine pronunciation and made an effort to acquire most of its features, recognising that the orthography does not do it full justice. But they stop short of imitating whatever is downright contrary to the orthography. The so-called *gorgia fiorentina* 'Florentine rasp (or gargle)', documented as far back as the sixteenth century and exemplified nowadays by pronouncing [lah'asa] instead of *la casa* [-k-] 'the house', was and is rated a vulgarism, never approved in Rome and hardly ever by non-Toscans anywhere.¹⁷ And when the diphthong [yɔ] as in *tuona* was simplified more recently to [ɔ] among ordinary speakers in Florence and the surrounding parts of Tuscany, the educated Italians as a whole would not follow suit.¹⁸ For [t'ɔna] is contrary to everyone's received orthography and the pronunciation that goes with it. The national standard is based on Tuscan as it was adopted centuries ago by literate people in other parts of Italy; it is now their patrimony.

The term orthography is from Greek. ὀρθογραφία meant 'straightforward writing' with no blunders; it is found, not surprisingly, in texts dealing with grammar, a study that developed slowly in ancient Greece after the introduction of the alphabet.¹⁹ Much research, particularly by Sven-Tage Teodorsson,²⁰ enables us to understand better how the diversity in spelling -- before the emergence of any recognised orthography -- reflected the actually diverse pronunciations within a community. The letters of the Greek alphabet, by virtue of their acrophonic names -- ἀλφα for [a-], βῆτα for [b-], etc. -- invited everyone to discern, as best he could, the vowels and consonants of each word that he or someone else pronounced. Thus the goddess of childbirth, who must have been invoked most often by women under physical and emotional stress, was spelled HILEIΘYA or ILEIΘYA or HELEIΘYA (besides other renderings).²¹ That was the one most variable word in the Attic corpus, but many others approached it. Since Athenian women were much more house-bound than men and except on holidays had only their immediate neighbors to converse with, it is no wonder that words belonging chiefly to the women's vocabulary remained more variable or deviated from what was otherwise the Attic norm.²²

Linguists who seek to pin down the phonemes of each language or dialect have to be reminded that for most purposes a speech-community needs only a modicum of uniformity. Considerable variation is natural, unless curbed by formal schooling or a strict literary standard. Yet we can sense how even the most elementary instruction in writing would tend to favor one pronunciation over another, although the alphabet itself -- in the abstract -- was impartial and would record any and every pronunciation. To help the beginners grasp the basic application of the alphabet, any

teacher with a normal teacher's mentality -- upon encountering a word liable to such varied pronunciation -- will scarcely encourage them to write it every which way; for that is just too confusing for beginners. Instead he will fasten on one pronunciation, have them all pronounce the word that one way, and teach them to spell it accordingly. For the sake of skill and assurance in writing, or anything else, it is better to have a single model, even a simplified model, than to be equally exposed to the full variety of things. First, the word to be written is stripped of its diversity; then, after it has been written a certain way, that spelling of it may well dictate the pronunciation preferred thereafter, crowding out the alternatives.

Orthography has had an indispensable role in the establishment of standard languages, and especially in regulating their phonology. Though it cannot stop people from making subsequent changes in pronunciation, sometimes -- not always -- it keeps the changes from being accepted by educated speakers. In certain crucial epochs only a social collapse or decline, involving a great curtailment not just of higher education but of ordinary literacy, unleashed a phonological and morphological revolution, which may have been already in process among the illiterate. Such a thing happened in the Roman empire around the fifth century, and in England after the Norman conquest, which drastically hurt the English upper classes and replaced them with a privileged nobility and clergy from France.

Rather than generalizing, I would emphasize that the links between pronunciation and spelling have differed from one language to another. There are, however, correlations that recur, and understanding them makes it less difficult to explain many particular phenomena.

NOTES

1. See George H. McKnight, *Modern English in the Making* (New York: D. Appleton, 1928), pp. 278-280, 320-322.

2. The official *Diccionario de la lengua castellana* went through thirteen editions from 1726 to 1899 before the Academia changed the last word of the title to *española* in 1914. This gesture toward national unity did not change the substance along with the name of the language.

3. In the "Los Latinos" column of the Chicago *Sun-Times* I caught *halla* (which ought to mean 'he finds') instead of *haya* 'he have' (subjunctive). The author (or perhaps the printer) evidently confused the two words because he pronounces both of them

['a₁ja]. Not pronouncing the Castilian [i₁] at all, he got mixed up over when to write *ll*. For early examples of confusion in this pair of words and others, see Paul M. Lloyd, *From Latin to Spanish*, I (Memoirs of the American Philosophical Society, vol. 173; 1987), 334-347.

4. George Kingsley Zipf, *The Psycho-biology of Language* (Boston: Houghton Mifflin, 1935), especially pp. 97-118.

5. In French some other complex changes eroded the /s/ phoneme in certain environments.

6. See Lloyd (above, note 3), pp. 331-336, who symbolizes them /s/ and /ś/ respectively.

7. According to an anecdote that I have not been able to trace (an American student of Spanish passed it on to me many years ago), the [β] got started with a king who lisped and was deferentially imitated by his courtiers. Whether or not there is any grain of historical truth in this explanation of a phonetic oddity, the anecdote signified something about the Castilian character that seemed credible, however extravagant: to what absurd lengths the Castilians would carry their heart-felt loyalty. As a linguist I wonder whether the relative rarity of [β] in the languages of the world may be due to a reaction against this sound as an infantile lisp -- all the more distasteful because it is associated with the bad experience of nipping the tip of the tongue with the front teeth.

8. See J. Corominas, *Diccionario crítico etimológico de la lengua castellana*, s.v. "ce!", and Lloyd (above, note 3), pp. 336 ff.

9. This was, in essence, recognised by the Academia itself in the first ed. of *Ortografía de la lengua castellana* (1741), p. 97, long before the term phoneme was introduced: "Si atendemos solo a la pronunciación debemos desterrar de el abecedario la *v* consonante, que no pronunciamos y siempre confundimos con la *b*, lo que dió ocasión a que dixesse con viveza un tudesco: O beati Hispani, dum bibere dicunt vivere"; quoted by T. Navarro Tomás, "Lecciones de pronunciación española," *Hispania*, 4 (1921), 2.

10. Before Ramus's double-edged attempt to make the script more rational, the angular *v* was used chiefly at the beginning of a word, and the rounded *u* elsewhere. That was what suggested to him an easy improvement; for in the initial position the *v* was already serving for a consonant most of the time, and at that a fricative consonant -- since the ancient semivocalic pronunciation [ɥ-] was not preserved by the schools anywhere in Europe.

11. *Gramática de la lengua castellana* (1870), quoted by Navarro Tomás (above, note 9), p. 4.

12. T. Navarro Tomás, *Manual de pronunciación española*, 4th ed. (New York: Hafner, 1948), p. 92: "Hoy sólo pronuncian entre nosotros la *v* labiodental algunas personas demasiado influidas por prejuicios ortográficos o particularmente propensas a afectación. Sin embargo, los españoles de origen valenciano o mallorquín y los de algunas comarcas del Sur de Cataluña pronuncian la *v* labiodental hablando español, no por énfasis ni por cultismo, sino por espontánea influencia fonética de su lengua regional. . . La mayoría de las personas cultas, tanto en Castilla como en las demás regiones afines, lejos de estimar la pronunciación de la *v* labiodental como una plausible perfección, la consideran como una mera preocupación escolar, innecesaria y pedante."

13. See Daniel Jones, *The Pronunciation of English*, 3d ed. (Cambridge University Press, 1956), p. 118.

14. Navarro Tomás (above, note 12), pp. 101-102.

15. This affricate developed in Italy and the Balkans out of the ancient Latin [k] before a front-vowel. The short -i- of *tīmet* (and innumerable other words) was no doubt [i] in ancient times, nearly intermediate between the two long vowels *ī* [i:] and *ē* [e:] and hence prone to merge with the latter in most of the Romance languages. But once [i] was gone from the vernacular phonology, those who studied Latin pronounced the letter *i* always with the closed quality [i], and they disregarded whether it was short or long unless they were composing verses in a classical meter.

16. The scholar Giangiorgio Trissino of Vicenza (not in Tuscany) around 1525 tried to remedy the graphic ambiguity by bringing in two Greek letters, ε and ω; but hardly anyone followed this up; see Bruno Migliorini, *Storia della lingua italiana* (Firenze: Sassoni [1958]), pp. 345-346, 368-369. Only the International Phonetic Alphabet, some three hundred years later, got its symbol [ɛ] apparently from Trissino.

17. See Herbert J. Izzo, *Tuscan & Etruscan* (University of Toronto Press, 1972), especially pp. 19-24, 28-30, 60.

18. Francesco Bruni, *L'italiano: Elementi di storia della lingua e della cultura* (Torino: UTET, 1984), pp. 142-143, describes the controversy between the great novelist (and admirer of Florence) Alessandro Manzoni and his admirer, the great linguist Graziadio Isaia Ascoli, who objected to the very first word in the title of a recent book by Emilio Broglio, *Novo* (instead of *Nuovo*) *vocabulario della lingua italiana secondo l'uso di Firenze* (1870), inspired by Manzoni.

19. See my article "The Origin of Grammar in Sophistry," *General Linguistics*, 23 (1983), 41-47.

20. Above all, *The Phonemic System of the Attic Dialect 400-340 B.C.* (Studia Graeca et Latina Gothoburgensia XXXII, 1974).

21. Leslie Threaght, *The Grammar of Attic Inscriptions*, I (Berlin: Walter de Gruyter, 1980), 342-344. In the old Attic version of the alphabet (which kept H as a consonant) the [l] was shaped λ, nearly like the Latin L, while Λ stood for [g].

22. Cf. Plato, *Crat.* 418c: αἱ γυναῖκες, αἵπερ μάλιστα τὴν ἀρχαίαν φωνὴν σῶζουσι 'the women, who preserve the old language (or pronunciation) the most'.

LEXICAL FACTORS IN THE PRAGMATICS OF WRITTEN ENGLISH

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This paper could easily have been called "Received Ideas and the Pragmatics of Language Use" or "It's Not What We Don't Know That Gets Us into Trouble; It's What We Know That Isn't So."

The present study is the final report on a four-year study that attempts to examine the pragmatics of language use under rather narrow conditions, the analysis of lexical, syntactic, semantic, and pragmatic choices in writings produced at the end of freshman composition classes. The study began by asking how it is that expert readers and writers, in this case teachers of writing, are able to read and evaluate texts. The idea that the generative syntactician's notion of an ideal fluent native speaker-hearer, possessing some sort of "linguistic competence" at the sentence level and below, could be extended to the level of discourse has been around for a long time in discourse analysis and text linguistics, and the notion of competence beyond the sentence (Chafe 1970; Van Dijk 1972; Culler 1975; Schaubert & Spolsky 1986) has seldom been questioned. But the belief that there exists a sort of text grammar or discourse competence or communicative competence, when examined closely, turns out to be problematic (Mills 1987).

In this study I began by noting that expert readers, especially writing teachers, are able to analyze and evaluate the effectiveness of texts. Those of us who teach composition do this every day: it is part of what we get paid for doing. I began by asking, therefore, whether there are surface features of texts that can be associated with expert readers' judgments of writing effectiveness. An affirmative answer to this question certainly seems to underlie most approaches to stylistics: writers make choices, and the effects of those choices govern readers' responses to their texts.

Received ideas, conventional wisdom that is seldom questioned, abound in advice to writers and even scholarly treatments of style within rhetoric and composition theory. From everyone's favorite highschool English teacher, Miss Fidditch, to style manuals and handbooks for writers, to scholarly chapters on the evaluation of writing, unexamined maxims crop up. Writers are urged to be brief, to choose their words with care, to avoid repetition, to avoid common words and phrases, to write short sentences--some companies and government agencies set maximum sentence lengths, to write, contrariwise, more complex, and thus longer, sentences (sentence combining approaches to the teaching of writing), to limit the occurrence of to be severely, and above

all to avoid the use of the dreaded passive voice.

In recent years the flow of advice from English teachers, handbooks, etc., has been augmented by computer software, "style analysis" programs, sometimes marketed as aids to teachers of writing, sometimes intended, apparently, to serve as revision guides for beginning students, that repeat the advice of the handbooks. For example, AT&T's Writer's Workbench will provide the teacher or the writer with statistics on mean sentence length in an essay, with all occurrences of to be flagged along with a note on local standards for the percentage of to be in good writing, with all occurrences of the passive flagged along with a note on how many passive constructions local standards allow and a suggestion that the writer ask herself whether each of her uses of the passive is necessary, with occurrences of sexist usages flagged, and so forth. Some of this is undoubtedly good advice, but experienced writers, examining their own composing processes, and experienced teachers of writing, looking at what in their own paper-marking process seems to work, will question the relevance of much of this information. Some of us suspect, in fact, that such Tools for Writers (Thury 1987) produce a great deal of information and very little knowledge. Yet such is the authority of the computer in our society that it will simply not do to say that such information must be interpreted wisely and serves only as a starting point for revision leading presumably to effective writing. The temptation to misuse such information is too great.

In any case, we begin here with the question of whether such information is based on sound premises in the first place. That is, do expert readers attend to such surface features of texts when reading, or do such surface features correlate with underlying aspects of discourse structure that affect readers' processing of texts?

The present study is an essay in applied linguistics that looks at a particular data base of essays written by college students at the end of a year-long sequence of courses in freshman English. Student writings came from the Exit Examination of the Freshman English program in the McMicken College of Arts and Sciences at the University of Cincinnati, a large urban state university enrolling around 35,000 students on 5 campuses.

In order to assure greater standardization in the literacy skills acquired by freshmen, the English department has required since 1978 that all students in the program write a common persuasive exit essay before they are allowed to pass their final course in Freshman English. The examination is given every quarter. Essays are read and graded by at least 2 independent raters according to a holistic general impression grading system like that outlined in Cooper (1977). Essays are rated on a four-point scale, with a score of 2.00--actually, 1.67, since some essays require three readers--required to pass.

The present study is based upon the 177 exit exam essays written in December of 1984. On this particular exam a total of 64 writers (36%) failed the exam. Scores ranged from 1.00, total failure awarded by 2 raters, to 3.00, the second-highest

mark possible under the system. For 177 essays the mean rating was 1.80. Of the 113 essays that passed, 11 received a score of 3.00.

First, to test the venerable advice that writers should avoid repetition and vary their choices of words, the type-token ratio was calculated by dividing the number of unique words, the number of separate lexical items, by the total number of words in each essay. Correlation between type-token ratio and grade was not significant ($p=.43$).

Next, I tested the naive assumption that long essays might be rated more highly than short ones. This is hardly a trivial matter: style manuals urge brevity, but composition research indicates that high-rated essays tend to be significantly longer than low-rated essays. Here, essays ranged from 228 to 1,395 words, with the median length at 571. There is a statistically significant association between essay length and grade ($\chi^2=29.46$; $p<.01$), but examining cell frequencies in a cross-tabulation reveals that long essays do not necessarily receive high marks but rather that weak essays tend to be short, a finding that accords with Witte & Faigley's (1981) results.

Because the dominant paradigm in composition has for a long time been, following Hunt (1965), based on the measurement of syntactic complexity--words per t-unit--a great deal of research was devoted to attempts to correlate average syntactic complexity of essays with grades. While computer style analysis programs normally give statistics on mean sentence length in words, there is a large body of research, beginning with Hunt (1965), demonstrating that mean sentence complexity is a more robust indicator of the influence of syntactic choices on writing effectiveness. Some software, e.g., Writer's Workbench, actually yields data on syntactic complexity under the heading of "sentence variety." To summarize the present research, a weak ($r=.28$) but significant ($p<.0001$) correlation was found between grades assigned by expert raters and mean sentence complexity (Mills 1986a).

Later, Beaman's (1984) clause type analysis, which she developed during her research on oral versus written narrative in The Pear Stories (Chafe 1980), was applied to the essays. Here again, no significant correlations were found between clause type and grade, adding support to Beaman's contention that the oral-literate distinction is probably misconceived (Mills 1986b). On a suggestion of Gerald Delahunty, the proportion of cleft and pseudo-cleft sentences was also examined. Statistical analysis of clefts is currently being completed, but preliminary data show no significant association between either clefts or pseudo (wh-) clefts and readers' assessments.

To conclude the analysis of syntactic choices and readers' evaluations of effectiveness, I decided to test the received idea that readers, especially teachers, do not favor use of the passive voice. Unfortunately, despite the injunctions of the handbooks, it appears as though the prohibition of the passive is based more on impressions than actual reader preferences. The relative abundance or scarcity of passive forms did not correlate

significantly with grade.

Newcomers to linguistics are often rather surprised to learn that linguists pay, for the most part, scant attention to words, though there has arisen a renewed interest in word formation (Aronoff 1976; Bauer 1983) in the past decade, and writers like Aitchison (1987) and Verschueren (1985) have recently published books on the lexicon. Detailed study of children's acquisition of lexical items have been published more recently (Miller & Gildea 1987; Mills 1980, 1984). In composition theory there have been sporadic attempts to focus on word choice in "mature" writers, though these essays in lexical pragmatics remain mostly programmatic.

In Cooper & Odell's influential book *Evaluating writing* (1977), Patrick J. Finn has a chapter entitled "Computer-Aided Description of Mature Word Choices in Writing." Finn begins by restating Ellis Page's view that we can gain an indirect insight into a writer's syntactic choices by examining the lexical items a writer uses, chiefly by looking at word frequency counts (Page 1966). Page also suggested that we might be able to characterize a writer's style by calculating the "proportion of uncommon words" (Page 1966: 242). Page studies the writing of high school students, and he apparently worked with an intuitive notion of what constituted an uncommon word.

To test Page's contention that we can gain an indirect measure of a text's syntactic complexity by examining the proportions of prepositions and subordinating conjunctions, I calculated these proportions. Contrary to Page's view, the association between these lexical classes and grades was not significant, a result that also held true for the relative pronouns who and which. Again, following Page's view, we might predict that coordinating conjunctions and, but, or, nor, and yet, which tend to reduce the syntactic complexity of an essay, would correlate negatively with grade. This negative correlation did indeed obtain ($r = -.158$), but this was far from significant ($p = .2$).

Finn (1977) proposed to extend Page's analysis of word frequency by using, in addition to the proportions of certain kinds of words, the standard frequency index (SFI) for the words in an essay. The SFI for a word represents its probability of occurrence as calculated in various corpus-based studies, especially Carroll, Davies, and Richman (1971). For example, "if a word has an SFI of 90, one would expect to find it once in every ten words (the word the has an SFI of 88.5). If a word has an SFI of 80, one would expect to find it once in every 100 words" (Finn 1977: 74), and so on.

Finn's working hypothesis was that unusual, but not freakish, word choices mark a "mature style." On this view, we might expect the mean SFI of a highly rated essay to be lower than that of a lower rated one. Because the SFI of a word marks the probability of its occurrence, a lower SFI means that a word is less common than one with a higher SFI. If Finn's hypothesis that unusual word choices mark a mature style were true, we would expect higher rated essays to show a lower mean SFI. That is, we

should expect a negative correlation between the mean SFI for all the words in an essay and the rating assigned to the essay by expert readers. The mean SFI does exhibit a negative correlation with grade for these essays, but it is far from significant ($p=.276$). Thus, Finn's view is not supported by hard evidence.

Finn suggested that certain classes of words--"Abstract Nouns, Verbs Denoting Cognitive Activity and Adjectives Judging an Abstract State" (Finn 1977: 85)--be looked at in evaluating readers' responses to essays. Despite Page's (1966, 1968) suggestion that we look at proportions of uncommon words, there was no significant correlation between grade and any of the lexical classes suggested by Finn (1977). In fact, the correlation between Finn's category of abstract adjectives and grade almost attained significance ($p=.0525$), but the correlation was positive ($r=.302$), indicating that common rather than uncommon abstract adjectives were favored (Mills 1988a).

In addition, despite the importance that some discourse analysts attach to certain classes of semantically empty particles (Stubbs 1983) and adverbials, especially prepositional phrases functioning as locatives (Quirk 1987), statistical analysis does not reveal any strong links between these supposed markers of discourse structure and experts' assessments of writing quality. Furthermore, the nearly semantically empty pro-verb *do* shows no correlation in any of its forms with grade. As noted earlier, prepositions, adverbs, and conjunctions also show no connection with readers' judgments of quality. Similarly, the use of negation, both with the full word *not* and its contracted form, shows no correlation, in proportion or in SFI, with grade.

In the analysis of Finn's intuitively defined lexical class of cognitive verbs, certain limitations of my own computer software caused me to look at participles as separate, formally defined classes. For all essays, the total number of past participles per 1,000 words had a mean of 30.27. There was a slight negative correlation with grade ($r=-.02$), indicating that readers did not favor the use of these forms, but the correlation was not significant ($p=.384$). For all past participles in all essays, the mean SFI was 53.9, and this correlated very weakly with grade ($r=.002$; $p=.489$).

English shares with other Germanic languages a mixed inflectional morphology for verbs. Weak (dental preterite) verbs tend to be more numerous, but strong (ablaut) verbs tend to occur more frequently. If the Page-Finn view on uncommon words were valid, we might expect to find different influences of strong and weak verbs on readers' judgments. As predicted, forms ending in *-ed* were much more numerous, occurring 23.08 times per 1,000 words, while lexicalized past participles occurred an average of 7.19 times per 1,000 words. Again, as predicted, lexicalized forms (strong verbs) were much more common, though less frequent (mean SFI=60.41), while productive (weak) forms had a much lower mean SFI (50.94). Correlation between grade and rate of occurrence was non-significant ($p=.374$ for weak and $p=.483$ for strong verbs). Similar results obtained for the SFI of both classes of

verbs. Correlation between grade and SFI was not significant ($p=.22$ and $p=.21$, respectively) for either class of verbs.

Past participles can function in surface structure as verbs in VP in both passive and perfect constructions, as prenominal deverbal adjectives, as in phrases like broken homes and divorced parents, as postnominal modifiers in children affected by divorce, or as predicate adjectives in the lock is broken.

Rates of occurrence for past participles as verbs and postnominal modifiers did not correlate significantly with grade. For all essays, the correlation between prenominal modifiers and grade was $r=.135$ ($p<.05$), indicating a slight preference for past participles as prenominal modifiers. For all essays, readers showed, on the other hand, a dislike for past participles as predicate adjectives ($r=-.14$; $p<.05$). When essays lacking these constructions were excluded, this negative preference became even stronger ($r=-.21$; $p<.01$). Correlations between SFI and grade for prenominal modifiers and for predicate adjectives were not significant (Mills 1988b).

By far, present participles constituted the most interesting and puzzling lexical class derived from Finn's speculation. Strangely, the mean SFI of the words ending in -ing correlated significantly with grade on all the essays.

Looking at the proportion of -ing forms and calculating their rate of occurrence per 1,000 words of running text, we find that it does not matter how many words ending in -ing an essay contains ($r=.006$; $p=.47$). But the SFI of words ending in -ing does show a significant negative correlation with grade ($r=-.21$; $p<.01$). For some reason, writers' choices of less common words ending in -ing tends to correlate with higher grades (Mills 1988a).

In English surface structure a verb ending in -ing can function as a verb in progressive (continuous) constructions, as in the sentence

More students are graduating from high school today.

as a deverbal adjective in sentences like

Many graduating seniors look forward to college.

or as a deverbal noun (gerund) in sentences like

Graduating was my goal from the time I entered college.

Given the three surface syntactic functions--verbs, deverbal adjectives, deverbal nouns--of words ending in -ing, I correlated exam grades with the -ing forms according to surface function. Surface verbs ending in -ing did not correlate significantly with grade, either in proportion of occurrence or in SFI. Proportions of nouns ending in -ing also did not correlate significantly with grade, but the correlation between noun SFI and grade ($r=-.15$) was significant ($p<.05$). So here uncommon forms do appear to be favored.

For deverbal adjectives the situation is a bit more complex. Rate of occurrence of these forms per 1,000 words correlates positively ($r=.17$) and significantly ($p<.05$) with grade, but the

SFI does not correlate significantly. Apparently, readers approve of modifiers ending in -ing whether they are common or uncommon.

For one-word deverbal nouns ending in -ing there is no significant correlation between SFI and grade. However, for deverbal nouns as heads of heavier, complex NP's SFI correlates significantly with grade for all essays ($r = -.16$; $p < .05$) and even more strongly when essays with none of these forms are deleted ($r = -.19$; $p < .01$). For adjectival forms the situation is equally complex. None of the adjectives' SFI's correlate significantly with grade, but the proportions of postnominal adjectives do correlate significantly ($r = .19$; $p < .01$ for all essays; $r = .14$; $p < .05$ excluding essays lacking these forms) (Mills 1988a).

We are left to assess the import of these, mostly negative, findings. Restricting ourselves to these particular findings, we can hazard a guess that readers' preferences for certain kinds of formally defined lexical classes is due primarily to functional (rhetorical) considerations. Because Graduate Teaching Assistants, who teach about one-third of the classes in the program and who grade examinations along with regular and adjunct faculty, are trained to teach a unit on free modifiers (Christensen 1967), the value assigned to postnominal adjectives, most of which are derived from reduced relative clauses, some of which are nonrestrictives, may be ascribed to this local bias in teaching and grading.

The preference for noun phrases headed by uncommon words ending in -ing is harder to explain. An information theoretic explanation (Shannon & Weaver 1949) would hold that uncommon words, because they convey more information, in the technical sense, than common words, should be more highly valued by readers. But such an explanation does not tell us why such an explanation applies to words ending in -ing and not other words.

Of greater importance is the fact that, for the most part, Page's and Finn's hypotheses on lexical choices, which mirror the conventional wisdom of folk linguistics, are not supported. Since these views appear, in various guises, in several influential publications on evaluating writing (Cooper 1977) and on discourse structure (Halliday & Hasan 1976; Stubbs 1983; Quirk 1987), it is desirable that they be tested rigorously and, if not supported, laid to rest.

But of greatest importance, I think, must be the observation that such "building block" bottom-up approaches to writing--the teaching of writing or the analysis of what constitutes effective writing--are in a fundamental sense unhelpful. In another context I argued that good writing is constructed using both bottom-up and top-down procedures and that analysis of the pragmatics of language beyond the level of the sentence could benefit from the application of schema theory or frame analysis (Mills 1985).

Locally, with this particular data base the importance of sociolinguistic and larger pragmatic considerations is illustrated by one, unexpected set of findings. In the course of

several analyses it was discovered that essays that took a strong stand on the exam topic tended to be rated higher than essays that simply presented arguments for both sides of the question ($p < .05$ by a one-way ANOVA with post hoc comparisons). The importance of this particular pragmatic factor is not surprising, given that the exit examination always requires students to write a persuasive essay, but it is seldom treated in the handbooks and never mentioned by computer style analysis programs (Mills 1986b).

But in general, I would argue that seeking to correlate the demonstrated ability of competent expert readers with surface features of texts--whether those features are lexical; syntactic, semantic, or small-scale pragmatic features--is a misguided enterprise. And sources of authority--whether they be Miss Fidditch, the composition handbook, or style analysis software--that depend upon the counting of such surface features are almost certainly unhelpful and probably dangerous.

REFERENCES

- Aitchison, J. (1987). Words in the mind: an introduction to the mental lexicon. Oxford: Basil Blackwell.
- Aronoff, M. (1976). Word formation in generative grammar. Cambridge, MA: MIT Press.
- AT&T Information Systems, Inc. Writer's Workbench. Computer Software.
- Bauer, L. (1983). English word-formation. Cambridge: Cambridge University Press.
- Beaman, K. (1984). Coordination and subordination revisited: syntactic complexity in spoken and written narrative discourse. Coherence in spoken and written discourse, ed. by D. Tannen. Norwood, NJ: ALEX.
- Carroll, J., Davies, P., & Richman, B. (1971). The American Heritage word frequency book. New York: Houghton Mifflin.
- Chafe, W. (1970). Meaning and the structure of language. Chicago: University of Chicago Press.
- _____. (1980). The pear stories: cognitive, cultural, and linguistic aspects of narrative production. Norwood, NJ: ALEX.
- Christensen, F. (1967). Notes toward a new rhetoric: six essays for teachers. New York: Harper & Row.
- Cooper, C. (1977). Holistic evaluation of writing. Evaluating writing: describing, measuring, judging, ed. by C. Cooper & L. Odell. Urbana: NCTE. Pp. 3-31.
- Culler, J. (1975). Structuralist poetics: structuralism, linguistics and the study of literature. Ithaca: Cornell University Press.
- Dijk, T. van. (1972). Some aspects of text grammars: a study in theoretical linguistics and poetics. The Hague: Mouton.
- Finn, P. (1977). Computer-aided description of mature word choices. Evaluating writing, ed. by C. Cooper & L. Odell. Urbana: NCTE. Pp. 69-89.
- Halliday, M., & Hasan, R. (1976). Cohesion in English. London:

Longman.

- Hunt, K. (1965). Grammatical structures written at three grade levels. Champaign: NCTE.
- Miller, G., & Gildea, P. (1987). How children learn words. Scientific American 257 (Sept.): 94-99.
- Mills, C. (1980). Universality and variation in the acquisition of semantic categories: English color terms. Language use and the uses of language, ed. by R. Shuy & A. Shnukal. Washington: Georgetown University Press. Pp. 197-204.
- _____. (1984). The acquisition of English color terms: language, culture, and psychology. Semiotica 52: 95-109.
- _____. (1985). Language, mind, and freshman comp: a schema-theoretic approach to discourse. Proteus 2: 12-18.
- _____. (1986a). Syntactic complexity as a measure of writing effectiveness. XXXIVth Southeastern Conference on Linguistics. Auburn University.
- _____. (1986b). Syntax and the evaluation of college writing: a blind alley. Delaware Symposium on Language Studies, VIII. University of Delaware.
- _____. (1987). Linguistic models, research designs, and discourse communities. Defining Discourse Communities. Midwest/MLA. October 1987.
- _____. (1988a). Lexical choice in written English: an essay in applied pragmatics. Tennessee Philological Association. David Lipscomb College.
- _____. (1988b). Words writers choose and their effects on readers. XXXVIIIth Southeastern Conference on Linguistics. Memphis State University.
- North, S. (1987). The making of knowledge in composition: portrait of an emerging field. Upper Montclair, NJ: Boynton/Cook Publishers.
- Page, E. (1966). The imminence of grading essays by computer. Phi Delta Kappan 47: 238-243.
- _____. (1968). The use of the computer in analyzing student essays. International review of education 14: 210-225.
- Quirk, R. (1987). Words at work. Singapore: Singapore University Press.
- Schauber, E., & Spolsky, E. (1986). The bounds of interpretation: linguistic theory and literary text. Stanford: Stanford University Press.
- Shannon, C., & Weaver, W. (1949). The mathematical theory of communication. Urbana: University of Illinois Press.
- Stubbs, M. (1983). Discourse analysis: the sociolinguistic analysis of natural language. Chicago: University of Chicago Press.
- Thury, E. (1987). Tools for writers. Computer Software. Kinko's.
- Verschueren, J. (1985). What people say they do with words: prolegomena to an empirical-conceptual approach to linguistic action. Norwood, NJ: ABLEX.
- Witte, S., & Faigley, L. (1981). Coherence, cohesion, and writing quality. CCC 32: 189-204.

TOWARD A COMPLETE OVERVIEW OF THE ENGLISH SPELLING SYSTEM

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Introduction

While the phonemic structure of English has been exceedingly well mapped, its graphemic representation remains largely uncharted. In fact, significant portions of its intricate web have remained virtual terra incognita. To date there is no complete overview in print; no definitive survey of the full array of graphemic representations of English phonemes.

Neither an insightful first attempt (Dewey, 1971), nor an otherwise thorough and scholarly recent treatise (Cummings, 1988) appear to have been successful in achieving an all-encompassing presentation of the total number of graphemes occurring in English script. The most ambitious and most voluminous one (Hanna et al., 1966) falls even shorter of creating a linguistically reliable overview of the phoneme-grapheme ratio.

My earlier paper (Nyikos, 1988), presented at the Fourteenth LACUS Forum, tried to give an indication of how much greater the number of English graphemes is than previously imagined. It included (1) a 1,190-word description of the grievous shortcomings of our existing spelling system and (2) the statistical summary of the graphemes of English, identified by comprehensively surveying the pronunciation variants of entries in the college dictionaries listed in the bibliography. In the wording of the running text of (1) were unobtrusively used fifty graphemic representations of the upper high back vowel /u/. The statistical summary of the total number of graphemes found in the English orthography and the phoneme-grapheme ratio (Nyikos, 1988: 156-57) were surprisingly high even then, but continued research has yielded even higher counts and, consequently, ratios. They are as follows:

(1) in practically all dictionary words and many names known to highly educated Americans: 2,024 graphemes, with a phoneme-grapheme ratio of: 1:50.60

(2) in words and names classified as commonly used in conversations and readings of educated Americans: 1,360 graphemes, with a phoneme-grapheme ratio of: 1:34.00

(3) in common words and names (as defined above), counting only their first pronunciation variants listed in the dictionaries: 1,064 graphemes, with a phoneme-grapheme ratio of: 1:26.60

Qualification of phoneme and grapheme components and relations in our orthography as summarized in the preceding paragraphs can shed light on the primary difficulty which consistently frustrates the teaching and the learning of reading and writing English.

The nature of that difficulty can be further underscored by examining the infrastructure of the numerical overabundance of the graphemes of some 40 English phonemes.

The purpose of this paper and its sources

This paper seeks to systematize the vast array of graphemic representations of English phonemes into a comprehensive framework. In order to accomplish this task, categories and subcategories had to be defined and established and a suitable nomenclature devised, accommodating the immense diversity of not only letters but also letter fragments and letter combinations comprising our orthography.

As indicated on the first page of this paper, the linguistic literature addressing our topic has not offered much to base an overview on. Even in the most germane treatises only Dewey includes a phoneme-grapheme tabulation and ratio; it amounts to 1:13.70 (Dewey, 1971:9). Whitney (1874), Lowe (1959), Soffiotti (1955) and Yule (1986) brilliantly draw valid conclusions concerning the unnecessary overabundance of English graphemes. Yet they fail to provide sufficient statistical evidence. The sole exception is Yule who makes a brief reference to "over six hundred ways . . . listed [by] Pitman & St. John (1969) to represent the forty-four phonemes . . . in English." Rondthaler (1986) supports his cleverly presented concise conclusions with various lists of altogether 550 graphemes which symbolize 42 phonemes: (a -- non-disclosed -- ratio of 13.09). Cummings' scholarly reasoning, aimed at finding regular occurrences of graphemes (Cummings, 1988) fails to see the forest for the trees. Despite his insightful and elaborate graphemic analysis he ends up with a mere 270 graphemes (with 40 phonemes posited), i.e. a ratio of 1:6.75.

A comparison with my phoneme-grapheme ratio of 1:50.60 seems rather strong supporting evidence for the degree to which the basic problem of our spelling has been underrated to date. Rudolf Flesch (1955 and 1981) concentrates on the so-called phonics method of teaching, but he also overlooks too many kinds of graphemic inconsistencies.

As indicated above, no available publications set up any framework for structural patterns of the complexity of the intricate web of graphemes. Consequently, my attempt had to be carried out independently. This research consisted of an item-by-item analysis of each vocabulary and name entry (and of their pronunciation variants) presented by *Webster's Ninth New Collegiate Dictionary*, 1984, (henceforth: *Merriam-Webster*). A similar exhaustive survey of the other dictionaries (see References) supplemented it. What follows is not held to be the only conceivable system; nor is it thought to be complete or flawless.

Technical explanations

(1) Dictionary titles have been abbreviated by using their initials. These initials have been placed into parentheses following each vocabulary item or name whose source is a dictionary other than *Merriam-Webster*. The initials (AH) stand for *The American Heritage Dictionary*, 1982; -- (FW) for *Funk and Wagnalls Standard Dictionary*, 1980; -- (NW) for *Webster's New World Dictionary*, 1988; -- (RH) for *The Random House College Dictionary*, 1973.

(2) Only the first initial of the dictionaries enumerated above appears in parentheses whenever a pronunciation variant is quoted from a dictionary other than *Merriam-Webster*.

(3) Parentheses have also been used (a) for enclosing vocabulary items or names which belong exclusively to word and name category (1), as defined on the first page of this paper and (b) for enclosing a frequently accompanying word following a quoted one: e.g. let's (stop); -- you're (right).

(4) Asterisks designate plural forms of vocabulary items quoted.

PROJECTED GRAPHEME CATEGORIES WITH ILLUSTRATIVE EXAMPLES

1. SINGLE LETTERS

1.1 FULL, INDEPENDENT, UNMARKED SINGLE LETTERS

1.1.1 Full, independent, unmarked single letters

The phoneme* /s/: c: Cinginnati, s: sensation, t: negotiation, x: phalanx, z: quartz;

/i/: a: picayune, Raphael, e: equal, i: martini, y: happy

1.1.2 Full, independent, unmarked single letters, functioning as letter - NAMES

/e/: A: ABC, /i/: E: NEA, /o/: Q: SQS, /ay/: I: FBI

1.2 FULL, INDEPENDENT, MARKED SINGLE LETTERS

1.2.1 FULL, INDEPENDENT, APOSTROPHIZED SINGLE LETTERS

1.2.1.1 Full, independent single letters, preceded by an apostrophe

/a/: Quar'an, /d/: we'd, /ə/: 'em, /k/: 'cause, /m/: I'm, /n/: fish 'n
chips

1.2.1.2 Full, independent single letters, succeeded by an apostrophe

/a/: Baha'i, /d/: coup d'etat, /ə/: o'clock, /n/: don't, can't, /o/: Q'Neil,
/z/: Achille's heel

1.2.1.3 Full, independent single letters between apostrophes

/n/: rock 'n' roll

1.2.1.4 Full, independent single letters connected by an apostrophe

/d-z/: Lord's prayer, /t-s/: cat's paw

1.2.3 FULL, INDEPENDENT SINGLE LETTERS, MARKED BY DIACRITICS

1.2.3.1 acute accent: /a/: Galápagos Islands, /e/: café, /ɛ/: résumé, /ə/: protégé, /ʔ/: Reykjavík, /ʌ/: Bartók

1.2.3.2 grave accent: /a/: déjà vu, /e/: suède, /ɛ/: cause célèbre, /ə/: vis-à- vis

1.2.3.3 circumflex: /æ/: château, /e/: crêpe, /ɛ/: raison d'être, /o/: rôle

*Hereafter phonemes will be marked only by virgules -- without the designation "phoneme."

- 1.2.3.4 breve: /ʌ/: (K'ung Fu'tzu)
- 1.2.3.5 macron: /a/ and /u/ and /i/: (Hārūn ar-Rashīd)
- 1.2.3.6 haček: /č/: (haček, Mohorovičić discontinuity(R))
- 1.2.3.7 diaeresis: /a/ (Lacocoön), /ɛ/ Noël, /i/ naïve, Brontë, /o/ (Boötes)
- 1.2.3.8 umlaut: /ə/ and /ɛ/: Götterdämmerung, /ɪ/: (kümmel), /u/: flügelhorn, /U/: Dürer(esque)
- 1.2.3.9 cedilla: /s/ façade, garçon
- 1.2.3.10 a Danish and Norwegian diacritic: /ɔ/ (Bokmål), /ə/ smorgåsbord (FW, NW)
- 1.3 FULL INFLUENCED SINGLE LETTERS
- 1.3.1 Full letters under the influence of a subsequent "silent e"
 /e/: aC(C)e: ale, able; /ay/: iC(C)e: ice, idle; /o/: oC(C)e: ode, ogle, /u/: uC(C)e: rule, conclude

2. PARTS OF SINGLE LETTERS

2.1 PARTS OF INDEPENDENT, UNMARKED SINGLE LETTERS

2.1.1 First half of independent, unmarked single letters

Ċ: /ɪs/: privatdōgent, Ĩ: /iy/: familiarity, m̄: /mə/ McKinley, ŋ: /əŋ/: knish, ũ: /ny/: vicuna, Ɔ: /wʌ/: one, R̄: RBI, /ɹɪbi/, X̄: /ks/: tax, X̄: /gz/: exact, Z̄: /ɪs/: Nazi, Ū: /yu/: usual

2.1.2 Second half of independent, unmarked single letters

Ċ̄: /yə/: singwy: /sɪnyəwi/, Ĩ̄: /əl/: child, m̄̄: /əm/: rhythm, ŋ̄: /mɒ/: comfort, ũ̄: /nt/: principle, sensible, ŋ̄̄: /ny/: pinata, Ɔ̄: /əw/: heroism, Ɔ̄̄: /ər/: choir, Ū̄: t̄: height /hayt̄/, Ū̄̄: Ūw/: virtuoso (N), X̄̄: /kʃ/: sexual, X̄̄̄: /gʒ/: luxurious

2.1.3 First third of independent, unmarked single letters

/y əw/ evaluation

2.1.4 Second third of independent, unmarked single letters
/yəw/ ambiguous

2.1.5 Third third of independent, unmarked single letters
/yəw/ arguable

2.1.6 First half of independent, unmarked single letters, functioning as letter-NAMES

B : /bi/ ABC, **C** : /si/ **D** : /di/ D-day, **F** : /ɛf/ FBI, **G** : /ji/ GI,
H : /eɪ/ H-bomb, **J** : /je/ VI-day, **K** : /ke/ OK, **L** : /ɛl/ LSD,
M : /ɛm/ AM, **N** : /ɛn/ NBC, **P** : /pi/ p.m., **R** : /ar/ RCA, **S** : /ɛs/ USA,
T : /ti/ PTA, **U** : /ju/ UN, **V** : /vi/ VE-day, **W** : double /yu/ YWCA,
Y : /way/ YMCA, **Z** : /zi/ z-axis

2.1.7 Second half of independent, unmarked letters, functioning as letter-NAMES: the second PHONEME of each item in paragraph 2.1.6

2.1.8 First third of independent, unmarked single letters, functioning as letter-NAMES

Q : /kyu/ IQ, **X** : /ɛks/ X-ray

2.1.9 Second third of independent, unmarked single letters, functioning as letter-NAMES

Q : /kyu/ p's and q's, **X** : /ɛks/ MX

2.1.10 Third third of independent, unmarked single letters, functioning as letter-NAMES

Q : /kyu/ Q-ship, **X** : /ɛks/ x-coordinate

2.2 PARTS OF INDEPENDENT, MARKED SINGLE LETTERS

2.2.1 PARTS OF INDEPENDENT, APOSTROPHIZED MARKED SINGLE LETTERS

2.2.1.1 First half of letters preceded by apostrophes

d' : /əd/ it'd, what'd; **n'** : /ən/ stop 'n save (RH), **s'** : /ɪz/ Venus's-flytrap (R)

2.2.1.2 Second half of letters preceded by apostrophes

d' : /əd/ it'd, what'd; **n'** : /ən/ stop 'n save (RH), **s'** : /ɪz/ Venus's-flytrap (R)

2.2.1.3 First half of letters succeeded by apostrophes

M' : /mə/: M'Carthy; **n'** : /ən/: mayn't

2.2.1.4 Second half of letters succeeded by apostrophes

M' : /mə/: M'Carthy; **n'** : /ən/: mayn't

2.2.1.5 First half of letters between apostrophes

n' : /ən/: rock-'n'-roll (RH)

2.2.1.6 Second half of letters between apostrophes

n' : /ən/: rock-'n'-roll (RH)

2.2.1.7 First third of letters succeeded by apostrophes

S' : /sə z/: Saint Agnes' Eve

2.2.1.8 Second third of letters succeeded by apostrophes

S' : /sə z/: Saint Vitus' dance

2.2.1.9 Third third of letters succeeded by apostrophes

S' : /zə z/: Wilms' tumor

2.2.1.10 First half of independent single letters, succeeded by apostrophes, functioning as letter-NAMES

d' : /di/: maître d'; **H'** : /eɪ/: 4-H'-er

2.2.1.11 Second half of independent single letters, succeeded by apostrophes, functioning as letter-NAMES: the second PHONEME in each item under 2.2.1.102.2.2 PARTS OF INDEPENDENT SINGLE LETTERS, MARKED BY DIACRITICS2.2.2.1 First half of independent single letters, marked by diacritics

ŷ /yʊ/: (Pëter Ilich) Tchaikovsky, **ñ** /ny/: vicuña, piñata, **ŷ** /yu/: Geiger-Müller counter, **ŷ** /yU/: Düreresque

2.2.2.2 Second half of independent single letters, marked by diacritics

ŷ /yʊ/: (Pëter Ilich) Tchaikovsky, **ñ** /ny/: vicuña, **ŷ** /yu/: Geiger-Müller counter, **ŷ** /yU/: Düreresque

2.3 PARTS OF INFLUENCED SINGLE LETTERS

- 2.3.1 First half of unmarked single letters under the influence of a subsequent "silent e"

Ce: /yʊ/: cute; **Ce**: /yU/: pure

- 2.3.2 Second half of unmarked single letters under the influence of a subsequent "silent e"

Ce: /yʊ/: immune; **Ce**: /yU/: endure

3. COMBINATIONS OF TWO SINGLE LETTERS

- 3.1 Two full, single letters, connected by an apostrophe, representing one phoneme

a'a: /æ/: ma'am; t'd: /d/: it'd /d/: e'e: /ɛ/: ne'er; y's: /i/: lady's slipper; n's: /n/: Salomon's seal; s's: /s/: Venus's-flytrap; t's: /s/: let's (stop); s's: /z/: Court of St. James's

- 3.2 Combination of second half of a single letter with a succeeding full single letter, representing one phoneme

- 3.2.1 Consonants plus consonants

/s/: **xc** excel, **xh** exhibition, **xs** exsanguine, **xt** textbook
/z/: **zc** excerpt, **zh** exhibit

- 3.2.2 Consonants plus vowels

/s/: **xe** deluxe, **xi** maximal /mæksməl/
/s/: **xi** (ob)noxious, **xu** sexually /sɛkʃli/

4. FULL DIGRAPHS

- 4.1 FULL, UNMARKED DIGRAPHS

- 4.1.1 Full, unmarked consonant-plus-consonant digraphs

/c/: **ch** church, **cz** Czech, **sc** conscientious, **sh** welsh, **th** posthumus ts catsup, rt overture
/m/: **mb** thumb, **mn** common, **mn** condemn, **mp** symptom, **gm** paradigm, **lm** salmon, **nm** environment, **rm** yarmulke, **tm** handcraftman, **nd** grandpa

- 4.1.2 Full, unmarked vowel-plus-vowel digraphs
 /e/: ae Israeli, ai maintain, au gauge, ay say, ea great, ee entree, ei vein, ey they, ie lingerie
- 4.1.3 Full, unmarked consonant-plus-vowel digraphs
 /c/: ci provincial, si transient, te righteous, ti question, tu sumptuous
- 4.1.4 Full, unmarked vowel-plus-consonant digraphs
 /m/: am Benjamin, em mathematician, im maximum, om sophomore, en happen, un until
 /e/: ah graham crackers, eh Yahweh, er dossier, es Descartes, et buffet, ez laissez-faire
- 4.2 FULL, MARKED DIGRAPHS
- 4.2.1 FULL, APOSTROPHIZED DIGRAPHS
- 4.2.1.1 Full digraphs, preceded by an apostrophe
 're: you're (right), 've: I've
- 4.2.1.2 Full digraphs, followed by an apostrophe
 ss': for righteousness' sake
- 4.2.2 FULL DIGRAPHS, MARKED BY DIACRITICS
- 4.2.2.1 Vowel-plus-vowel digraph, with acute accent
 ée: entrée
- 4.2.2.2 Consonant-plus-vowel digraph, with acute accent
 hé /e/: Héloise
- 4.2.2.3 Vowel-plus-vowel digraph, with grave accent
 îè /i/: première (R)
- 4.2.2.4 Vowel-plus-consonant digraph, with grave accent
 ès /e/: après-ski
- 4.2.2.5 Vowel-plus-vowel digraph, with circumflex
 ât /e/: maître d'hôtel
- 4.2.2.6 Consonant-plus-vowel with circumflex
 hôt /o/: maître d'hôtel

5. PARTS OF DIGRAPHS

5.1 PARTS OF UNMARKED DIGRAPHS

5.1.1 First half of unmarked consonant-plus-consonant digraphs

wh: /hw/: what; **nn**: /nt/: Pennsylvania: /pɛntsəlvɛnyə/;
th: /tθ/: eighth

5.1.2 Second half of unmarked consonant-plus-consonant digraphs

wh: /hw/: what; **nn**: /nɪ/: Pennsylvania: /pɛntsəlvɛnyə/;
th: /tθ/: eighth

5.1.3 First half of unmarked vowel-plus-vowel digraphs

ua: /yə/: valuable; **ui**: /yu/: nuisance; **eu**: /yU/: euphoria;
ou: /yu/: coupon; **uu**: /yu/: vacuum; **ue**: /əw/: issue; **ou**:
 /Uw/: silhouette; **oo**: /wU/: oops

5.1.4 Second half of unmarked vowel-plus-vowel digraphs

ui: /yu/: nuisance; **eu**: /yU/: euphoria; **ou**: /yu/: coupon; **uu**:
 /yu/: vacuum; **ue**: /əw/: issue; **ou**: /Uw/: silhouette; **oo**: /wU/:
 oops

5.1.5 First half of unmarked consonant-plus-vowel digraphs

le: /əl/: vegetable; **re**: /Ur/: pretty /pUrti/

5.1.6 Second half of unmarked consonant-plus-vowel digraphs

le: /əl/: vegetable; **re**: /Ur/: pretty /pUrti/

5.1.7 First half of unmarked vowel-plus-consonant digraphs

ut: /yu/: debut; **ur**: /yər/: mercury

5.1.8 Second half of unmarked vowel-plus-consonant digraphs

ut: /yu/: debut; **ur**: /yər/: mercury

5.1.9 First third of unmarked vowel-plus-vowel digraphs

ue: /yəw/: value

5.1.10 Second third of unmarked vowel-plus-vowel digraphs~~ue~~: /yəw/: continue5.1.11 Third third of unmarked vowel-plus-vowel digraphs~~ue~~: /yəw/: argue5.2 PARTS OF MARKED DIGRAPHS5.2.1 PARTS OF APOSTROPHIZED DIGRAPHS5.2.1.1 First half of apostrophized, consonant-plus-consonant digraphs~~ll~~: /əl/: I'll5.2.1.2 Second half of apostrophized, consonant-plus-consonant digraphs~~ll~~: /əl/: you'll5.2.1.3 First half of apostrophized consonant-plus-vowel digraph~~ve~~: /əv/: we've (been)5.2.1.4 Second half of apostrophized consonant-plus-vowel digraphs~~ve~~: /əv/: I've (had)5.2.1.5 First third of apostrophized digraphs~~ss~~: /ə z/: Congress' reluctance5.2.1.6 Second third of apostrophized digraphs~~ss~~: /səz/: the witness' testimony5.2.1.7 Third third of apostrophized digraphs~~ss~~: /səz/: the boss' office5.2.2 PARTS OF DIGRAPHS MARKED BY DIACRITICS5.2.2.1 First half of digraphs with diacriticsüh: yU/: Fuhrer5.2.2.2 Second half of digraphs with diacriticsüh: /yU/: Fuhrer

6. COMBINATION OF DIGRAPHS AND PARTS OF SINGLE LETTERS

- 6.1 Second half of unmarked single letters combined with subsequent digraphs
XSC: /ks/: exscind; XSW: /ks/ coxswain /kaks ən/; xth: /ks/: sixth /siks/
- 6.2 Apostrophized digraphs, combined with subsequent single letters
es's: /z/: Charles's /ˈtʃarlz/ Wain; in's: /n/: Saint Martin's summer /mɑːrtɪn sʌm r/; st's: /s/: Christ's thorn (shrub) /kraɪs θɔːrn/

7. FULL TRIGRAPHS

- 7.1 FULL UNMARKED TRIGRAPHS
- 7.1.1 Unmarked consonantal phoneme trigraphs
 /ʃ/ fch: Neufchâtel (cheese); sch: schnook; shh: shh (RH); ski: Hammarskjöld; ssh: transship; psh: pshaw; rsh: Worcestershire (sauce); che: moustache; chi: pistachio; sci: luscious; shi: fashionable; ssi: mission
- 7.1.2 Unmarked vowel-phoneme trigraphs
 /o/ eau: bureau; eu: Seoul; aux: faux pas; hau: haute (couture/cuisine); ogh: Keogh (plan), van Gogh; ore: forecastle; owe: owe
- 7.2 MARKED TRIGRAPHS
- 7.2.1 Apostrophized trigraphs
ldn't: /n/: shouldn't
- 7.2.2 Trigraphs with diacritics
ées: /e/: (Champs Élysées)

8. PARTS OF TRIGRAPHS

- 8.1 UNMARKED TRIGRAPHS
- 8.1.1 First half of unmarked trigraphs
eau: /yʊ/: beauty, eue: /yʊ/: queue, ewe: /yʊ/: ewe, He: /eɪ/: braille, sle: /eɪ/: aisle

8.1.2 Second half of unmarked trigraphs

eau: /yʊ/: beauty eue: /yʊ/: queue, ewe: /yʊ/, He:
/ə/: braille, He: /ə/: aisle

9. FULL TETRAGRAPHS9.1 Consonantal phoneme tetragraphs

/č/: tsch: kitsch; /m/: mned: damned; /n/: eign: sovereign; /n/:
nnes: Cheyennes*; /n/: ngue: tongue; /s/: rces: Worcestershire (sauce);
/s/: ches: riches*; /v/: hors d'oeuvres*

9.2 Vowel-phoneme tetragraphs

/e/: aigh: straight; eigh: weigh; /i/: ille: ratatouille; /o/: eaux:
nouveau* (riches); /o/: ough: though; /ʊ/: augh: taught; /u/: ioux:
Sioux; ough: through; oups: coups* d'état; /ə/: ough: thoroughgoing

10. PARTS OF TETRAGRAPHS10.1 First half of tetragraphs

ough: /əw/: thorough; who: /Uə/ whoops

10.2 Second half of tetragraphs

ough: /əw/: thorough; who: /Uə/ whoops

11. PENTAGRAPHS11.1 Consonantal phoneme pentagraphs

/l/: ularl: particularly

11.2 Vowel-phoneme pentagraphs

/ʊ/: augh: (Somerset) Maugham; /u/: ough: brougham

12. HEXAGRAPHS12.1 /e/: eilles: Marseilles; /ay/: ailes: Versailles

References

- The American Heritage Dictionary*. Boston: Houghton Mifflin Co., 1982.
- Cummings, D.W. *American English Spelling*. Baltimore: The Johns Hopkins University Press, 1988.
- Dewey, Godfrey. *English Spelling: Roadblock to Reading*. New York: Columbia University Press, 1971.
- Flesch, Rudolf. *Why Johnny Can't Read*. New York: Harper & Row Publishers, Inc., 1955.
- , *Why Johnny Still Can't Read*. New York: Harper & Row Publishers, Inc., 1981.
- Funk and Wagnalls Standard Dictionary*. New York: Funk and Wagnalls Co., 1964.
- Hanna, Paul R., et al. *Phoneme-Grapheme Correspondences as Cues to Spelling Improvements*. Washington, D.C.: Office of Education, U.S. Department of Education, 1966.
- Lowe, Helen R. "Solomon or Salami" in *The Atlantic Monthly*, 204. 5. 128-131. November, 1959.
- Nyikos, Julius. "A Linguistic Perspective of Functional Illiteracy" in *The Fourteenth LACUS Forum*, 146-163. Lake Bluff, IL: Linguistic Association of Canada and the United States, 1987.
- Pitman, Sir J. & St. John J. *Alphabets and Reading*. London: Pitman, 1969.
- The Random House College Dictionary*, New York: Random House, Inc., 1973.
- Rondthaler, Edward & Lias, Edward. *Dictionary of Simplified American Spelling*. New York: The American Language Academy, 1986.
- Soffietti, James P. "Why Children Fail to Read: A Linguistic Analysis" in *Harvard Educational Review*, 25. 2. 63-84, 1955.
- Webster's New World Dictionary of the American Language*. New York: Simon and Schuster, 1984.
- Webster's Ninth New Collegiate Dictionary*. Springfield, Mass.: Merriam Webster, Inc., 1984.
- Whitney, William D. "How Shall We Spell?" in *Oriental and Linguistic Studies*, Second Series, 181-201, New York: Scribner, Armstrong & Co., 1874.
- Yule, Valerie. "The Design of Spelling to Match Needs and Abilities" in *Harvard Educational Review*, 56.3. 278-297, 1986.

FROM OBSERVATIONS TO RESEARCH:
TRACING BACK CONNECTIONS WITHIN A CULTURE

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The Argument

The paper will examine methods used in an investigation of what the investigators designate "the visual dragon" hypothesis which proposes a significant difference between the abilities and interest of native Chinese and English readers in noticing details of and recalling two-dimensional visual material.

Educational researchers and philosophers speculate on what teaching and learning would be like if the human mind and its potential were different. The fact is, however, that the "semiotic potential" (the capacity to make meaning with all types of visual, auditory, tactile material) is both universal as well as culturally influenced. The habits, the emphases, the patterns of the ancient choices which comprise a culture, encourage different directions of the mind. Such emphases which are incorporated into a society encourage the human potential in each generation to develop into elaborately different styles of meaning making. One of these is the theme of this paper, an aim of which is to increase educators' interest in visual semiotic development that, in the Chinese culture, can be examined in a living form.

The Chinese eye, this paper argues, is quite a different eye from the Westerner's. With a unique accuracy it sees, records, recalls, and contemplates ranges of two dimensional phenomena. A literate Chinese unintentionally practices a mental exercise not matched in the American experience for the Chinese has to see more meanings than he hears; the writing system has approximately 10 times more shapes than there are spoken representations. Consequently, the Chinese frequently runs through in his mind the possible written shapes or characters to imagine the one which is represented by the word he has heard. The "visual dragon hypothesis" proposes that such influences constitute stimuli to the growth of a specific type of visual skill, a skill reinforced by other unique cultural interests and having extensive implications.

In the first days of school in China, pupils learn to recite the 100 most common Chinese surnames. But there are far more names hidden behind these 100 words that these children are reciting.

"Li," for example, has perhaps ten ways it can be written. And each character has a radically different family history. As a result, the child of whatever language group in China practices with its writing seeing in his mind the different characters which are hidden, so to speak, behind the single sound of "Li"; in so doing he practices a visualization of tight, complex geometric designs.

Needing to explain frequently what cannot be said, even with the four tone varieties, the Chinese become swift in recognition of the representation of characters sketched in the air or in the hand. This practice of grasping transient movement is another impetus to a skill which includes the interest in the form of calligraphy and in the shape of names themselves.

The Method

We will discuss the informal observations which led to proposing an hypothesis of a difference between the abilities of Chinese and English perception of dense two-dimensional material. There are two broad types of research. There is the kind where the researcher knows in advance what he hopes to discover and then systematically sets about trying to do exactly that and only that. The other type, taking perhaps more time, starts in stumbling upon a situation. This paper describes such a type of research.

The anthropological assumption of interconnections among areas of cultural phenomena is difficult to demonstrate. Then sometimes, unexpectedly, an opportunity arises. Perhaps this is an event, commonplace to the members of the one culture but foreign to the outsider. Like an Ariadne thread this may lead an inquirer back into the complex labyrinth at the heart of the cultural information system. This paper will report an effort to work from an observation towards the inner cultural information core. It will outline the methods being tested for the investigation based on an incident of an extensive cultural habit. We will report the event, then describe our present efforts to examine its possible interconnection with other aspects of the culture.

The question of causal relationship between such different abilities and the geometric-like Chinese character writing system will be raised but not examined. Ezra Pound (1934), among others, had the insubstantial notion that the Chinese, as they read the characters in their writing system, are in fact seeing, for example, the mountain, the sun, the man. We are not arguing this position, with which we disagree.

The Viewpoint

The human mind is a wondrous thing and one can be continually amazed by its capacity to pursue one line of reasoning tenaciously to most complex ends. For example the Chinese writing system:

The Chinese did not stop representing all that they could say in picture-like ways. And we all should be very glad of that for had they, the human being would never have discovered how marvelously agile the visual side of our meaning making, semiotic potential could be. Drawing a picture for everything a person can say could certainly exercise the mind's imagining of ways of visual representation leaving aside the language and tonal differences to be added to visual complexity.

For thousands of years the Chinese have kept up this visual reference feat and have, in fact, succeeded in building a splendid, literate way of life around a separate shape constellation for almost everything they could say. But that invention did not end the value of this effort of creative and symbolic imagination, for if it did not itself set in motion a way of looking at the world differently from Westerners', it reinforced it. We discovered as we observed daily life that the Chinese special interest in the look of words is widespread and deeply ingrained in a myriad of daily behaviors that go beyond words themselves.

The Investigation. Step One: The Observation

Why was this graduate biologist riding down this tree-laden hill outside ancient Nanjing moving his finger on the palm of his hand while talking about his name? His bike's brakes did not work, so the observer was holding him back from head-long flight down the hill. With his hands free, Chi-lung took the opportunity to talk and do this finger ballet. The observer was puzzled. Did he have an insect to show?

When they arrived down at a flat area and squatted beside the lake, Chi-lung took a thin stick and carved his name in the Yangtze mud. There he showed the way his three character name looked. The words had to be seen, not just heard.

"But why did you need to write it on the hand and on the ground? Why didn't you just pronounce your name clearly?"

"You need to see it because you wouldn't know what Li I am."

"How many ways can Li be written?"

"Maybe thirty."*

"And each written name looks but doesn't sound different?"

"Of course."

The Chinese thinks the visitor can understand this finger ballet, that the Westerner can mentally stop it and see it as if it is written on paper. In this Chi-lung builds on an ingrained skill from the foundation of a cultural habit practiced before schooling, emphasized in his learning to read and write, and consolidated by the requirements of daily life with words and characters and names. But the foreigner is not accustomed to watching such micro, transient finger movements.

Later Chi-lung thinking about his name was seen sketching it on his own hand. Needing to show his name continually he has developed a skill in converting motion to a spatial form. Earlier we had looked at an outdoor stage with large Chinese characters which Chi-lung said were Mao Zedong's script and a sign in Sun Yet Sen's handwriting. This man's eye must be attentive to the fine points of such geometric forms. His mind must not only hear and know, but also see and know; he must be practiced in decoding and remembering such movements as well as the static form of the characters.

Step Two - The Questions

A torrent of questions intruded: What is it that the outsider cannot see that this Chinese is seeing? Does such a practiced skill develop a stronger recognition of such shapes, a greater capacity to hold such shapes in memory, to reproduce them accurately? Are there related behaviors?

Would such a skill translate into skill in taking intelligence, aptitude, engineering, mathematics tests?

Would matched samples of individuals from the Chinese system be better in computers than a Western sample, in engineering, mathematics?

*In fact, in the Chinese dictionary there are 66 different characters listed under Li; that is, there are 66 ways that the sound Li is manifested in shape and each has a different meaning. About 10 of these are family names. Again there are the tonal differences still leaving a group only visually distinguishable.

Step Three: Designing Data Gathering Strategies

I. Broader Observation: In Context

To begin, we first looked more carefully at daily Chinese life activities. The finger writing was seen frequently in the same two functional contexts (explaining and thinking about names and characters). In addition, subsequent observations showed the frequency and ubiquity of a special type of interest in a specific shape. The following list some of these observations.

Example #1

A Chinese-American looked at Tan standing across from her desk, then at the piece of paper with the name of the young woman.

"Your name looks like a boy's name. It looks kind of ... big," Frances said. And she showed bigness by holding out her arms.

To the observer the three complex nests of geometric characters, the characters of Tan Dali's name, did not look big or like a boy's name. They were, in fact, rather small. The character Da did mean big but names don't "look" like (maybe "sound" like but never "look" big). The Chinese was seeing something the observer was not.

"Why does Frances say your name looks big?" the observer asked.

"Well, of course it does," she replied.

Example #2

The chairman of the university's English department spoke about his effort to choose as an honor to his wife's surname (which was Huang/yellow) his newly born daughter's name. Hai Ping decided "yellow" was a good starting point. And from this basis he built a name as carefully as if a bracelet was being shaped as a gift: A flower that was yellow was the first step. Next, a little flower like this little girl. Sunflowers he didn't want; buttercups he didn't know. He found a flower that fit. After finding (a) a yellow (b) flower, (c) a small, beautiful flower, he wanted the right character. Consequently, he thought through selections from the 40,000 odd available. He wanted a character that (d) looked itself beautiful and (e) balanced harmoniously with his surname, both by itself and also as a whole in conjunction with the other characters comprising the name. Also he wanted (f) characters of equivalent complexity (g) that could be made efficiently (h) with particular strokes he favored, and (i) that would have a meaning that had more than one character form so that the child could later have a choice of which to use. Here are more steps than a comparable westerner would go through in a similar situation.

Example #3

A graduate student in a seminar commented on her appreciation of some Chinese classic poems. She and her friends referred to the beauty of the shape of some of the characters. A member of another seminar making an off-hand statement on the untranslatable feature of literature and remembering the way she had seen it executed, said that she "loved that character." These people added this type of visual recall to their appreciation of the literature; not a likely comment from a westerner about appreciation of Shakespeare.

Example #4

An artist, discussing the calligraphed statements he had put down the side of his delicate works, spoke about the characters themselves which only tangentially referred to the painting. Characters that would be beautiful to see in themselves had been chosen. Together they were a separate thing of appreciation. This was one of the levels on which the work was appreciated.

II. Formal Out of Context Examining of Chinese Interest and Sense of Shape

After identifying a wide range of Chinese commonplace name-shape interests, we explored the construction of formal searches for data. The following describe some of these efforts.

We looked for character-like shapes used in Western aptitude tests claimed to be predictive of success in certain professions and activities. For example, we selected items from a dentistry test, a profession where capacity to notice fine differences or similarities among a series of shapes was considered by the professor a predictor of successful completion of dental training. A second source of such examples was nonverbal intelligence type exercises. Pilot tests were designed: (a) awareness of differences in a sequence of shapes, (b) recall of differences, (c) capacity to reproduce them.

These explorations are discussed as "probes."

Probe 1 - Interpreting fused figures

One observation (not reported above) was that of a genre of a Wuhan artist which included joining of two characters to suggest a third meaning. The characters for milk and for water joined to represent intimacy (as close as milk when mixed with water). The character for stone with a broken top line was linked with various vertical lines to represent drops of water that can wear a stone away. As the artist's medium and his expectation that an audience could read his fusions were

of interest, we asked native Chinese and non-Chinese students what these fusions meant. Hence the populations were unequal. The non-Chinese respondents selected more concrete meanings and included less variety than the Chinese. Of course the Chinese responses approximated the artist's intended meaning. The characters needed explanation to the non-Chinese who also had different cultural associations (for example, mixing or diluting milk with water).

Probe ii - Speed in detecting similarities and differences in compact character-like geometric shapes

We selected a range of American professional, intelligence-like, nonverbal visual tests that used small geometric, abstract constellation figures. We have given 7 forms of these to 70 Chinese requesting that respondents find the figure which was the same or different. Results at this juncture were inconclusive.

Probe iii - Persistence of one visual component in semantically nonlogical contexts

This probe is based on a proposition (Tan, 1987) that the iconic nature of the Chinese orthography has a unique role in perpetuating anciently imbedded prejudices against women and on a level less available to the changes proposed by feminists in, for example, the English language. The argument is as follows:

The inclusion of male, female morphemes in the spoken and written systems is familiar to linguists. However, the Chinese orthography uses the character "female" as a component part in constructing words either (1) having derogatory meaning or (2) representing patriarchal standards of what women should be like. The following list belongs to group (1): In Chinese written characters, "women" is represented with a female side and a broom; "wife" as a female holding a broom; "envy" with a female side and "household." Others include "treacherous," "chaos," "improper," "suspicion," "ill will," "enmity," "grudge," "visit prostitutes," "go whoring," "trouble," "blunder," "corrupt," "venal," "jeopardize," "obstruct," etc.

The list of words in group (2), though not overtly derogatory represent the standards of a patriarchal society: "good," "wonderful," "yield to or act in submission," "winding tortuous," "peace and security," "play, sport," "delighted or pleased," "slave," "give pleasure or amuse," "tender or finicky," "belong," "in compliance with." Each is composed of the character of women with another character.

While "strength," "bigness," "power," "nobility," and the like might be considered in English to be male qualities and while articles, endings, pronouns, etc. carry prejudicial meanings in other societies, the Chinese situation, we reason, is different and in a way which related to the broad purposes of our investigation into the visual dragon.

Examples of these negative words constructed with the character "women" were shown to Chinese college students within a list of 9 other words. One of this list was "women." Subjects were asked to select from the list one word which reminded the subject of a word from the above list. After several trials we improved our list such that each was an equally illogical item so that only the visual similarity would explain any choice of that option.

Such combinations of "female" into a negative term leaves "female" in an unchanged form, unlike the "break" and "fast" of the English word "breakfast" where the intonational change blurs the separate meaning or the overlooking of the article, ending or pronominal connection in German. We suspect the spoken word triggers the negative feminine image despite the fact that it is not signaled in the spoken words.

Our next step is to apply these results to the oral presenting of both stem word and list. This will permit the full possible influence on the Chinese respondents of the "female" as a component part to be identified. No logical match between, for example, "deceit" and "women" exists. Hence if the match with the stem "women" were chosen, we could hypothesize that the memory of the visual association would be the basis of the connection.

Probe iv - Medical Research

In our designing of research probes and identifying the characteristics necessary for the sample populations of each, we proposed that the ideal would be two populations within China, one using a sound based writing system exclusively over generations, the other an ideographic logographic.

Discussing a "unique aphasic syndrome" exhibited only by Japanese patients, Sasanuma and Monoi in Neurology (1974) mention the different storage location of Kana and Kanji material. The researchers show both from one of their own cases and from those in the literature that linguistic behaviors of certain brain damage reveals a remarkable distinction between the functions retained for the sound based and the iconic based sections of the Japanese writing system.

"The defining feature of the syndrome," the researchers report, "is marked impairment in processing Kanji or Chinese characters . . . combined with relatively preserved capacity to process Kana or phonetic signs. . ." (p. 627). Sasanuma and Monoi

conclude: "The dual nature of orthographic systems in Japanese serves as a useful indicator in distinguishing the phonologic and semantic types of impairment" (p. 632).

In arguing from a semiotic standpoint and a premise of H. L. Smith Jr., Regan has previously proposed that a logographic orthography experienced and practiced in a mass culture situation would have neurological implications. Smith (1976) proposed that, without an exhaustive description of language and presumably related systems, we would be unable to have full knowledge of our basic neurological equipment.

The neurological findings above comparing one form of brain damage across the two writing systems provide one additional window through which to watch for further evidence.

Conclusion

McLuhan's (1962) early Sapir-Whorf-hypothesis-based work proposed that a broadly practiced, extensive cultural habit such as cultural choices made in a writing system extend to other habits and perceptions. In one sense this paper again raises this issue.

The paper has examined methods used in an investigation of implications of what the investigators designate "the visual dragon" hypothesis which proposes a significant difference between the abilities and interest of a native Chinese and English reader in noticing details of and recalling two-dimensional visual material.

Doing the tasks of the day, we rarely see the themes that weave themselves into the mass of commonplace moments of a culture's way of life. Yet, like chapters in a book, paragraphs in an essay, verses of a song, a culture's deep-down choices permeate large areas of behavior, becoming themes that play across the entire society's discourse. Only when these themes are identified do the patterns become apparent and can then be followed through to more definite evidence, applications, and implications. Such was our purpose here.

We have discussed the steps by which a hypothesis initiated on a bike ride in Nanjing is being examined. The paper described our first efforts to design methods for probing into the implications of a special quality of the Chinese eye and a difference between the abilities of native Chinese and English readers in noticing and recalling details of two-dimensional visual material. We consider each of our efforts as explorations of the mind of the dragon. At this point we have done no more than approach the problem of collecting of evidence. We do conclude this first report in some confidence that we have identified a wider range and variety of what we will call "shape" interests that are markedly different from those in the American culture. We suspect that these interests

are tied in some complex cause/effect relationships with other behaviors yet to be more definitively identified. Such interconnection of cultural associations would have no stopping, no starting point, but rather be like a seamless pattern like that in ornately layered silk that is in the entire pattern of Chinese thinking.

We have provided an example of research exploring a naturally occurring event, pushing back from an observation into other levels of a culture.

The observational evidence shows that the Chinese have pushed to an ultimate end one of the human mind's ways of representing. Elaborating the visual, the Chinese have created a system which displays a visual lexicon, and showed what can result from extrapolation of one of the human semiotic opportunities, one of the mind's ways of building "gorgeous palaces of meaning." Some support has been given to one of those feedback interrelationships that exist between cultural practices and the behavior of the members of the culture daily recruiting those practices. Our next step is to pursue and extend each of the probes.

References

- McLuhan, H. M. The Gutenberg Galaxy. Toronto: University of Toronto Press, 1962.
- Pound, Ezra. ABC of Reading. New Haven: Yale University Press, 1934.
- Sasanuma, Sumiko, & Monoi, Hisako. The syndrome of Gogi (word-meaning) aphasia. Neurology, 1974, Vol. 25, pp. 627-632.
- Smith, Henry Lee, Jr. Linguistics as a behavioral science. Forum Linguisticum, 1976, Vol. 1, pp. 95-121.
- Tan, Dali. Discussion, National Symposium celebrating 140th anniversary of the publication of C. Bronte's Jane Eyre and E. Bronte's Wuthering Heights, sponsored by the Research Institute of Foreign Literature of China Institute of Social Science, Beijing, Shanghai Translation Publishing House and Shanghai Teacher's College in Shanghai, The P.R.C., November 1987. (Unpublished)

THE COMPUTATIONAL COMPLEXITY OF WRITING SYSTEMS

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Ours is a multilingual world, and the promise of universal computing cannot be realized until we have an adequate solution to the problem of multilingualism in the computing environment. Most present day efforts by the industry to address this problem could be better termed efforts to internationalize computing. Their aim is to produce versions of computers, operating systems, and key programs which work in other languages. The results are single-language products which are just as limited as the original English-based versions. But in the same way that people are multilingual, our computing systems need to be multilingual. We need computers, operating systems, and programs that can potentially work in any language and can simultaneously work with many languages at the same time.

The most visible feature of a language is its system of writing, and the inability to support this for a new language is the first multilingual problem the prospective computer user is likely to encounter. In the typical mainframe or personal computer there is no choice; the graphic encoding of character shapes is an immutable feature of the hardware. The situation is improved somewhat in present day graphics adaptors for personal computers which allow the user to download the definitions of characters shapes. In an operating system like MS-DOS, however, one is still stuck with a one-to-one mapping from character codes to graphic shapes and thus has a limit of 256 possible characters.

The newer technology of bit-mapped graphics has the potential of changing all this, and this kind of technology is assumed for the remarks in this paper. In a bit-mapped system, every dot on the screen is independently controlled by software. This makes it possible to draw any conceivable character in any size or style. The Apple Macintosh is the consumer-level personal computer which has furthest developed the multilingual potentials of this technology. Built into the operating system is the Font Manager (Apple 1985) which makes it possible to have many fonts resident at the same time, each of which can redefine the shapes of the displayed characters. But writing systems involve more than just one-to-one mappings from characters to shapes. Context-sensitive mappings which result in phenomena like positional variants and ligatures are common. Therefore, in 1987 Apple introduced the Script Manager (Davis 1987, Apple 1988) which was designed to handle such aspects of writing systems.

The Script Manager, while far and away the best that is available today, falls short in two respects. (1) It does not provide a general mechanism for defining new scripts. Ideally, a new script could be defined by a user. Instead, each new script must be developed as a special case by a system programmer. In fact, Apple has

not published documentation on how to implement a script system because they have not yet generalized the internal interface between scripts and the operating system. (2) While the Script Manager has a reasonably adequate model of how to display different scripts, it has a very inadequate model of multilingual computing in general. In particular, it lumps into the single notion of script, what should be the three independent notions of language, writing system, and script.

The bottom line is that personal computer users still have no access to a multilingual computing environment which is either truly general or conceptually adequate. Why has multilingualism proven such a difficult problem for the computing industry? Does the wide variety in writing systems of the world possess such inherent computational complexity as to render a general approach impossible?

In the spirit of Geoffrey Sampson's recent book called *Writing Systems*, in which he calls for linguists to take seriously the study of writing systems as a legitimate part of our discipline (1985:11-15), I am setting out to apply a linguistic perspective to the search for a solution to the problem of multilingual computing. In part 1, I establish a baseline by illustrating the range of phenomena which an adequate solution must account for. Then in part 2, I propose a general solution to the complexities of rendering writing systems. Finally, in part 3, I begin to build a conceptual model for the support of multilingualism in the computing environment.

1. Establishing the baseline

To establish a baseline for this study, it was necessary to compile a list of the complexities that occur in writing systems. For a sample, I used Nakanishi's *Writing Systems of the World* (1980). This book identifies and describes 29 major scripts in common use today. His criterion for including a script was that it is used for publishing a daily newspaper. In his definition, a script may be shared by many languages. For instance, the Roman alphabet counts as just one script, which happens to be used in many modified forms by hundreds of different languages.

While there is tremendous diversity in the graphic symbols used in the 29 scripts, there is not very much conceptual diversity. This is not really surprising since all of the 29 scripts descend from one of only two traditions: the logographic system of ancient China (3 scripts) or the alphabetic system of the ancient Semites (26 scripts). All scripts share the same basic logic, namely, that graphic signs which correspond to linguistic signs are written in a sequence. In general, the written sequence is strictly linear, the order of the written signs matches the spoken order of the corresponding linguistic signs, and the graphic signs have a basic form which does not vary.

The complexities in writing systems occur when these generalizations are violated, namely, when the written sequence is nonlinear or out of spoken order, or when graphic signs have variant forms. Figure 1 illustrates the kinds of such complexities found in the sample of 29 major scripts. Before discussing the figure, we need a term to denote the elementary units of a script. I am following Sampson's terminology (1985:22) in calling them *graphs*.

Figure 1 Complexities of writing systems

Linearity and sequence

Nonlinearity

Burmese:

$$\underset{k}{\text{က}} + \overset{o}{\text{ဝ}} > \underset{ki}{\text{ကိ}}$$

Nonsequentiality

Malayalam:

$$\underset{gi}{\text{ഗി}} \text{ vs. } \underset{ge}{\text{ഈ}}$$
Variations in placement

Conjunct graphs

Devanagari:

$$\underset{nga}{\text{ङ}} + \underset{ka}{\text{क}} > \underset{ngka}{\text{ङक}}$$

Movable diacritics

Greek:

$$\acute{\epsilon} \text{ vs. } \acute{\epsilon}$$

German:

$$\ddot{e} \text{ vs. } \ddot{O}$$
Variations in form

Positional variants

Hebrew:

$$\underset{\text{final}}{\text{ך}} \text{ vs. } \underset{\text{nonfinal}}{\text{כ}}$$

Ligatures

Arabic:

$$\underset{\text{lam}}{\text{ل}} + \underset{\text{alif}}{\text{ا}} > \text{لا}$$
Typographic finesse

Optional ligatures

English:

$$fi > \text{fi}$$

Kerning

$$To > To$$

Figure 1 first illustrates cases in which the linearity and sequencing of graphs is skewed from the phonetic. The Burmese example shows a case in which the vowel graph is not part of the linear flow of graphs, but is placed above the graph of consonant which it phonetically follows. The *gi* syllable in the Malayalam example shows the vowel graph following the graph for the consonant it phonetically follows. However, for *ge* the vowel graph precedes the consonant graph. Nonlinearity may also be a result of contextually conditioned variations in placement. In the Devanagari example, a consonant graph which would normally be placed in the linear sequence of graphs is slightly modified and placed beneath another consonant graph when the two sounds combine to form a cluster. The positioning of diacritics is typically affected by context. For instance, the rough breathing in Greek goes over lower case graphs but precedes upper case ones. The umlaut in German must be raised to fit over an upper case vowel.

In many writing systems, a given letter of the alphabet is realized by different graphs in different contexts. For instance, figure 1 illustrates the word-final and nonfinal graphs for the Hebrew letter *kap*. Another kind of variant is the ligature in which adjacent graphs merge into one another to become a distinct graph which simultaneously realizes two elements. An example is given from Arabic. Optional ligatures are also used in high quality typesetting to add a touch of finesse to the

printed copy. For instance, in some high quality fonts for English, the combination *fi* is realized by a ligature which merges the letters together to form unique graphic images which must be defined as a distinct graph in the typesetter's font. Another example of finesse in typesetting is kerning. Certain pairs of adjacent graphs leave noticeable gaps of white space in the flow of text. The adjacent graphs may be kerned, or moved more closely together, in order to avoid this. For instance, in a sequence like *To*, the *o* is moved closer to the *T* so that the *T* actually overlaps it.

2. A general solution to the complexities of character rendering

I now propose a general solution for the graphic rendering of all the above writing system complexities. One caveat is necessary. This solution is being proposed as a general one only for writing systems that can be rendered typographically. The computational rendering of calligraphic scripts adds further complexities.

2.1 The need to distinguish character from graph

Writing systems demonstrate the same kind of function versus form distinction that is already familiar to linguists from the study of phonology and grammar. When a single letter of the alphabet is written with different shapes in different contexts, it is a case of a single functional element being realized by a number of environmentally-conditioned formal variants. Ligatures in writing systems are an example of the more general phenomena which linguists call portmanteau, that is, two functional elements being realized simultaneously by a single formal element.

While linguists have long been in the habit of basing notations on the functional level rather than the formal, the computing industry has not. The basic unit of textual encoding on computers is conventionally called the *character*. Because most computer display terminals have a built-in one-to-one mapping from character codes to displayed forms, computer users have been forced to encode information at the level of form. That is, to get the correct graphic forms in the correct contexts it has been necessary to store distinct character codes for the distinctive forms.

It was Joseph Becker, in his seminal article "Multilingual Word Processing" (1984), who pointed out the necessity to distinguish function and form in the computer implementation of writing systems. He observed that character encoding should consistently represent the same information unit as the same character. He then defined *rendering* as the process of converting the encoded information into the correct graphic form for display. He observed correctly that for any writing system, this conversion from functional elements to formal elements is defined by regular rules, and therefore the computer should perform this conversion automatically.

The proper modeling of writing systems thus requires a two-level system. At the functional level are information units called characters. At the formal level are elements called graphs. The higher level units called characters are realized by the lower level units called graphs.

2.2 Mapping from characters to graphs with finite state machines

Becker (1984) stopped short of offering a general computational model for the rendering function. Though at first blush the vagaries of positional variants, nonsequentiality, conjuncts, and ligatures seem to pose a complex problem for multilingual computing, it turns out that there is a simple and general way to implement these phenomena. It uses one of the most fundamental models in computer science, namely, the finite state machine. Finite state machines (also known as automata) have been known to linguists since Chomsky dismissed them as an inadequate formal model for natural language syntax in *Syntactic Structures* (1957). Though they are clearly not powerful enough for natural language syntax, they are foundational in formal language theory and mathematical linguistics. They are presented for linguists in works such as Gross 1972 and Partee 1978.

My inspiration for seeing finite state machines as the general solution to the problem of rendering in writing systems comes from recent work in computational linguistics. Johnson (1972) first observed that the rules of generative phonology could be modeled computationally by a finite state machine called a finite state transducer. A transducer reads an input tape and follows the grammar embodied in its internal states and transitions to write an output tape which is a translation of the input. Kay (1983) developed this idea further, and Koskenniemi (1983) was the first to implement it in a generalized morphological analyzer (see also Karttunen 1983, Karlsson and Koskenniemi 1985). His analyzer has a two-level phonological component which maps from lexical phonemes to surface phonemes (and vice versa) by means of rules coded as finite state transducers. Hegazy and Gourlay (1986) have already observed that finite state techniques can be used in handling the context-sensitive features of the Arabic writing system.

Figures 2 through 5 give an example for a small subset of the Greek writing system. Figure 2 defines the characters, graphs, and mappings for this miniature writing system. The writing system involves four characters, three of which are letters and the last of which represents word breaks. This miniature writing system renders the characters with six graphs: four of them are the default renderings of the four characters, and two of them are variant renderings required in certain contexts. In particular, when *sigma* precedes *space* it has a special final form, and

Figure 2 A small subset of the Greek writing system

Characters:	Mappings:
iota, sigma, omega, space	iota --> ι
	sigma --> σ
	omega --> ω
	space --> ␣
Graphs:	except,
ι, σ, ω, ␣, ς, ␣	sigma space --> ς ␣
	omega iota --> ϖ

when *iota* follows *omega* the pair are rendered with a single graph which puts an *iota* subscript under the *omega*.

The six replacement rules in the "Mappings" part of figure 2 describe the relationship between characters and graphs completely and unambiguously, provided we require that the longest left-hand parts always match first. Thus, for instance, *sigma space* must always be recognized as the two-character sequence matched by the fifth rule, and never as the single character matched by the second rule followed by the character matched by the fourth character. This means that when we see a *sigma* we can't produce any output until we move to the next character to see if it is a *space* or not; it is not until we see the next character that we will know whether to match the *sigma* with rule two or with rule five.

A finite state transducer is a machine which can embody this kind of matching logic as it reads an input stream of characters to produce the corresponding output stream of graphs. The rules of figure 2 translate into the finite state transducer given in figure 3. The circles in the diagram are called *states*; the arcs are called *transitions*. The machine always begins matching in state 1. Out of state 1 emanate four transitions, one for each of the possible characters in our miniature writing system. The machine looks at the next character in the input stream and follows the transition which is labeled by that character. In figure 3, if the next character is *iota* or *space* the machine returns to state 1. If it is a *sigma*, the machine transitions to state 2, and so on. Below each arc there is optionally an output given in angle brackets. The output consists of one or more graphs of the writing system. When the machine makes a transition, the graphs associated with that transition are output. The diamond-shaped boxes in the figure are references to existing states of the machine. Rather than drawing a number of arcs that would loop back to the left and clutter up the diagram, the diamonds are used instead to say, "Go back to the designated state."

Figure 3 A finite state transducer for the Greek subset

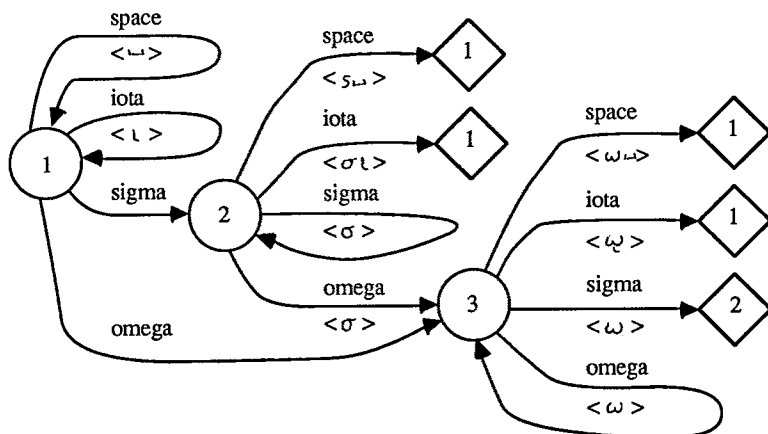


Figure 4 gives an example of the transducer in use. The input string *iota sigma omega iota sigma space* is transduced to generate the graphic sequence: ισως␣. The "State" line begins with 1 to show that the machine starts in state 1. From then on it indicates the state into which the machine moves after recognizing the character immediately above it. "Output graphs" shows the graphs which are output when the transition to the state above is made.

Figure 4 A sample output from the finite state transducer

Input characters:	iota	sigma	omega	iota	sigma	space
State:	1	1	2	3	1	2
Output graphs:		ι		σ	ω	␣

To complete this example, the same finite state transducer is given in figure 5 as a transition table. A table like this is often used to represent a finite state machine in a computer implementation. The row labels are all the states in the machine. The column labels are all the possible input characters in the writing system. The body of the table tells for each possible combination of current state and next input character, what the next state is and what graphs should be output if any. Comparison of figures 3 and 5 will show that the table contains the very same information as the state diagram.

Figure 5 The finite state transducer as a transition table

	iota	sigma	omega	space
1	1, <ι>	2	3	1, <␣>
2	1, <σι>	2, <σ>	3, <σ>	1, <ς␣>
3	1, <ω>	2, <ω>	3, <ω>	1, <ω␣>

This example, though quite simplified, illustrates how a finite state transducer can handle the phenomena of positional variants and ligatures. Nonsequential rendering is handled in the very same way by implementing mapping rules of the form, *ab --> ba*. Thus we see that all these difficulties for text rendering have been reduced to a single generalized solution. From the standpoint of computational complexity this result is particularly significant because the finite state machine is one of the most efficient known in computer science. It is guaranteed to produce its output in a time directly proportional to the number of characters in the input string. It is called a linear-time problem, because a graph of execution time versus length of input string would be a straight line. In terms of computational complexity, this algorithm for implementing the many-to-many mappings of textual rendering is just as efficient as the unacceptable one-to-one mapping scheme built into most current computer systems. The price we pay for the added capability is the extra memory space in which the finite state machine must be stored.

Building the finite state machine for a full writing system could be a tiresome and error-prone task. Fortunately, computer science has a solution. Algorithms for converting rules systems (such as given in figure 2) into finite state machines are well known. Thus it is my proposal that a generalized implementation of writing systems would allow users to describe new writing systems by expressing the mapping from characters to graphs as rewrite rules. The computer could take over from there to compile that description into a very efficient implementation as a finite state transducer.

2.3 The need to distinguish graph from image

Thus far we have spoken of graphs as the formal realization of characters. But in fact, graphs are not the ultimate concrete realization; they, too, have variants. For instance, there are thousands of written or printed symbols which a user of a Latin-based script would recognize as the graph called "lower case *a*." These variants could differ in size (such as 12 points versus 18 points), weight (such as medium versus bold), posture (such as regular versus italic), aspect (such as normal versus condensed), or in style (such as Times or Helvetica).

I shall use the term *image* to denote the concrete graphic form that a graph ultimately takes on the computer screen or on paper. Each of the above mentioned dimensions in which an image can vary is called an *attribute*. The combination of attributes which describe a particular image of a graph, I will refer to as the *appearance* of the graph. The complete set of images for a given appearance is called a *font*.

A font is another instance of a mapping from higher level functional elements to lower level formal ones. And like the mapping from characters to graphs discussed above, the mapping from graphs to images must allow for context-sensitive variants. This is in order to implement the phenomena I referred to as "typographic finesse" in section 1, namely, font-specific ligatures and kerning. These do not belong in the higher level mapping from characters to graphs because they are not used in all fonts; they are font-specific details.

Kerning and font-specific ligatures can be generalized under a single mechanism, namely, the mapping mechanism we have already discussed for the translation of characters to graphs. Each font may specify a private mapping function which defines the kerns and ligatures specific to the font. In the case of kerns, this means that the replacement string in mapping rules must include positioning commands as well as graph codes.

The addition of positioning commands allows us to solve the only remaining rendering problem, namely, the placement of diacritics. This is handled by mapping rules which translate combinations of diacritic graphs with a particular base graph into the proper images plus horizontal and vertical positioning commands to put the diacritics in exactly the right place with respect to the base character image and to each other. This kind of positioning belongs in the font-specific mapping because different appearances for the same base-diacritic pair could require different positioning commands.

2.4 Mapping through multiple levels with a single finite state machine

Our model now has three levels. The writing system deals with the relationship between the top two; it maps from the character codes of a language to graph codes of a script. The font system deals with the relationship between the bottom two; it maps from the graph codes to displayed graphic images. Both mappings can be implemented by the same general approach of finite state transduction.

By adding another level to the mapping operation, it appears that we are adding to the computational complexity of the task. In fact, this need not be the case. One of the results of automata theory in computer science is that a sequence of finite state transducers which map an input string through a series of levels, can always be converted into a single, larger finite state transducer which will produce exactly the same output while performing only a single transduction on two levels. In making this conversion, the combined finite state machine will take up more space than the total space of all the original ones. In return we get a single finite state machine which optimizes the speed—it is equally as fast as any of the original machines by themselves.

3. Toward a conceptual model for multilingual computing

In the introduction, I stated that the best multilingual system currently available for personal computers, namely the Macintosh Script Manager, offers neither a general way to define new scripts nor an adequate conceptual model of multilingual computing. The preceding section proposes a solution for the first of these; this section addresses the second.

3.1 The need for language-specific character sets

Communication between computer and user is not the only issue in multilingual computing. We must also be concerned with communication of encoded information between users (and their computers). Clearly, there must be agreed upon standards for what each character code represents before users can enjoy unlimited interchange of multilingual information.

One proposal that has come out of linguistic circles (Anderson 1984) is that we develop a universal character set that would include all the characters needed for encoding all languages. The proposal calls for codes which would use 16 bits of computer storage. This would make possible the definition of more than 65,000 characters. This approach, even if it were possible to achieve agreement on the members of the universal character set, suffers from a very basic flaw. It views multilingual information as a sequence of multilingual characters. The most fundamental organizing principle in multilingual information, namely, the notion of language itself, is missing.

Every piece of textual information stored in a computer is expressed in some language. It may in turn contain parts expressed in another language, and so on (such as when an English essay quotes a German paragraph which discusses some Greek words). The language that a particular piece of information is in governs

much more than just the writing system by which it gets displayed. It also governs how new information is typed, how two strings of text are compared to determine alphabetical ordering, how a string of text is decomposed into useful units (like sentences, words, or syllables), and how text is transliterated into other scripts or into other character coding standards.

Thus I propose that the correct way to handle multilingual information encoding is to use a different character set for each language. The key to keeping the languages separate is that the stream of encoded data must contain codes which identify the languages. Fortunately, unlike the universal character set proposal which has yet to be implemented, a multiple character sets approach has been adopted by the International Standards Organization (ISO 1973) and numerous conforming character sets have been established by national standards bodies.

3.2 The need to distinguish language from script

Current multilingual systems fall short of defining the notion of language as one of the key elements of a multilingual information processing system. With their focus on word processing they stop with scripts. I now argue for the need to distinguish language from script.

Scripts are shared by many languages. This is the definition we adopted in section 1 following Nakanishi's usage. This also accords with the use in current multilingual word processing systems where the additional graphs needed for various European languages are not built into new scripts, but are added to the same Latin-based script that is used for processing English.

With this definition of a script as including all the graphs required to render all the languages based on that script, it is possible to equate language and script when it comes to rendering. However, for other aspects of information processing this is unacceptable. For instance, the collating sequence for sorting is language specific; so are the rules for finding syllable breaks. If the computer is to know how to process a given piece of information, that information must be stored with a tag identifying its language. Then the system can consult a definition of how the basic information processing tasks are performed for that language. Script enters in as part of the definition of the rendering task.

Another reason for needing a distinction between language and script is to render text in languages which are written with more than one script. A classic example of this is Serbo-Croatian; the Serbs write their language with a Cyrillic script, while the Croats write the same language with a Roman script. The coding of text in languages like this should be independent of the script which will be used to render it. A user should be able to see the same text rendered in either script without having to change the stored data.

It is clear then that there is not a one-to-one correspondence between language and script. Many languages can be written with the same script. On the other hand, a single language can be written with many scripts. Language versus script must therefore be another two-level distinction in the model of general multilingual computing.

3.3 The need to distinguish writing system from script

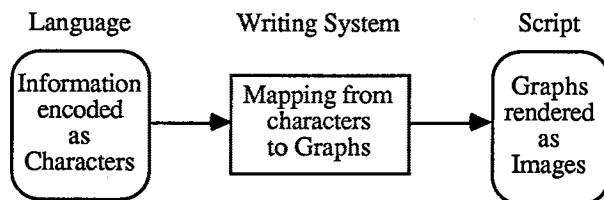
That we should need to distinguish between language and script is not surprising since they are clearly distinct concepts in everyday English-language usage. This is not true of the terms "writing system" and "script." In fact, Sampson (1985:20) states that "writing system" and "script" are used virtually interchangeably in his book. He goes on to discuss the problem of deciding whether two systems of writing exemplify two different scripts or are variants of the same script, posing writing in English versus German as an example (1985:21). In Sampson's treatment this remains an unanswered question.

The formal computational modeling of writing demands an answer, however. In the sense in which German and English writing are the same, the computational model must make them the same. In the sense in which German and English writing are different, the computational model must make them different. We can achieve just this by introducing a distinction between the notions of writing system and script. German and English clearly have different systems of writing, thus we will say that they have different writing systems. However, they are both based on the Latin script; thus we will say that they use the same script. We now develop a more formal definition of writing system versus script.

In this computational model of writing, language is the domain of character encoding. Scripts on the other hand, are the domain of graph rendering. Scripts know nothing about characters, they simply know how to render graphs. For instance, the graph which represents the letter *c* in English is rendered the same way in every language which uses it, regardless of the language-specific character code with which that graph may be associated. The model does not yet have a way of getting from the characters of a language to the graphs of a script. This is where the notion of writing system comes in.

Formally, a writing system is a mapping from the characters of a language to the graphs of a script, as illustrated in figure 6. The fact that a single language can be written with more than one script indicates that the mapping from characters to graphs is not just a property of the language. Rather, that mapping is a conceptual entity in its own right and a language can be associated with more than one of them.

Figure 6 The distinction between writing system and script



The definition of multiple writing systems for a single language solves not only the problem of languages that can be written in more than one script, but also the problem of contemporary and historical variants which are based on the same script. For instance, in writing German it is possible to substitute digraphs with *e* for umlauted vowels. In English 200 years ago, *s* was written with final and nonfinal variants. It is clearly desirable that text in such cases be encoded independently of these variations, so that selecting a particular writing system causes the text rendering to immediately change to the selected style.

Once writing system is defined as a distinct entity, we find two other aspects of multilingual text processing which belong in the writing system. These are the comparison function for sorting and the definition of directionality. The comparison function cannot be a property of the script, because different languages which use the same script have different sorting conventions. Nor can the comparison function be a property of the language. When a single language is written in multiple writing systems, there are generally different sorting conventions associated with the differences in writing system. Thus, the sorting component must be a property of the writing system.

Similarly, the direction of writing must be a property of the writing system. It is not a property of the language, for the same language written in two different scripts like Roman and Arabic will switch from left-to-right or right-to-left depending on the script. However, direction is not strictly a property of the script either. For instance, the Korean language written in the Hangul script is printed either in vertical top-to-bottom lines or in horizontal left-to-right lines (Nakanishi 1980:93). This fact would be modeled by defining two different writing systems. The direction component must also be able to specify a boustrophedon style of writing (in which the direction of successive lines alternates), and the mirroring or rotation of graph images which happens when line direction is reversed or when normally horizontal scripts are written vertically.

3.4 The need to view script as font family

In section 2.3 above we defined a font as a mapping from graphs to images. We have been defining a script in the same way. The basic difference is that a font can render graphs in only one appearance. A script can conceivably render graphs in thousands of appearances. Essentially the job of a script is to determine which font renders the requested appearance and to direct the rendering request to that font.

To organize the potential complexity of a script involving thousands of fonts, the fonts should be organized into a hierarchy of font families. A tremendous amount of duplication of information in closely related fonts can be avoided by introducing the convention that fonts (and all the fonts in a font family) inherit the characteristics of their parent font family. Thus shared characteristics need be defined only once for the font family rather than being repeated in every affected font. Whatever can be specified about a font can be specified about a font family—graphic images, metric information about the sizes of rendered images, new graphs for font-specific ligatures, mappings for ligatures or kerns. In the case of the graphic images, image definitions for a specific font could be instructions to

inherit the images from the parent font family and then scale them or otherwise transform them in a systematic way.

If a font family can specify all the same information as a font, what is the difference between them? Really, there is only one—unlike a font family, a font has no members.

And what is a script? In this model, a script turns out to be the same thing as a font family, but with one special characteristic—it has no parent font family. A script is thus the root node from which all the fonts used to render texts in a particular writing tradition inherit their commonality. The essential aspect of that inheritance is the set of graphs which every font of the script can render. As one descends the hierarchy of font families to levels of greater delicacy, the inventory of graphs may grow as greater finesse is applied in the context-sensitive rendering of graphs, but those additional graphs are invisible to the script itself.

We have now disposed of the functionality of the Macintosh-style script altogether. The font-specific ligatures belong to the private mapping functions of fonts or font families. The character-to-graph mappings that embody the obligatory ligatures, context-sensitive variants, and nonsequential ordering belong to the writing system component. Text processing functions like typing and string decomposition belong at the language level. The comparison function and directionality belong in the writing system.

3.5 Putting it all together

The conceptual model for multilingual text processing developed here is summarized in figure 7. It makes use of a semiformalized conceptual modeling language to do so. The definitions of the elements in the model have three basic parts. The first part is a header line which uses boldface type to name the element being defined. The second part is the list of components of the element. The third part, given in parentheses, defines what type of element each of the components must be. The names of elements which are defined elsewhere in figure 7 are given in italics. (The element type *string* refers to the normal sense in computing of an arbitrary sequence of characters.)

Figure 7 A conceptual model of languages and writing systems

A language has

- a name (which is a string),
- a code (which is a number),
- a character set (which is a set of *characters*),
- a typing component (which is one or more typing systems),
- a rendering component (which is one or more *writing systems*),
- a decomposition component (which is a set of decomposition functions), and
- a transliteration component (which is zero or more transliteration systems).

A character has

- a name (which is a string), and
- a code (which is a number).

A writing system has

- a name (which is a string),
- a code (which is a number),
- a script (which is a *script*),
- a mapping (which is a set of *character mapping rules*),
- a direction component (which specifies direction of graphs in line, or lines on page, and mirroring or rotation of graphs), and
- a sorting component (which is a comparison function).

A character mapping rule has

- a "from" part (which is a sequence of one or more character codes), and
- a "to" part (which is a sequence of zero or more graph codes).

A script is a *font family* which has no parent.

A font is a *font family* which has no members.

A font family has

- a name (which is a string),
- an appearance (which is an *appearance specification*),
- a parent (which is a *font family* or empty),
- members (which is a set of *fonts* or *font families* or empty),
- new graphs (which is a set of *graphs*),
- a mapping (which is a set of *graph mapping rules*),
- graphic definitions (which define basic graphic images for all graph codes),
- height definitions (which define the rendered height for the images), and
- width definitions (which define the rendered width for the images).

An appearance pattern has

- a style (which is a list of possible styles),
- a posture (which is a list of possible postures),
- a weight (which is a list of possible weights),
- an aspect (which is a list of possible aspects),
- a size (which is a list of possible sizes).

A graph has

- a name (which is a string), and
- a code (which is a number).

A graph mapping rule has

- a "from" part (which is a sequence of one or more graph codes), and
- a "to" part (which is a sequence of one or more graph codes or positioning commands).

With the full conceptual model in place it is now possible to define the rendering function of a multilingual computing environment. Informally, the function would be something like this. To render a string in a particular appearance, the system finds the language and writing-system tags of the string, and then looks up the corresponding writing system definition in the system resources. The mapping function defined in the writing system is used to convert the string of character codes into a string of graph codes. That string of graph codes is then submitted to the script specified in the writing system definition in order to

generate the graphic images. The font hierarchy of the script is searched to find the definition of the font which renders the desired appearance. As the font hierarchy is descended to more delicate levels, the graph sequence is submitted to the font-specific mappings until the bottom level is reached and the proper graphic images are drawn in the correct positions.

This traversal of the font hierarchy and cascading of mapping operations sounds like it could be computationally complex and inefficient. But as discussed in section 2.4, it need not be. A compiler could translate a multilevel description of a writing system and its script into a single finite state transducer which performs the mapping from characters to images in linear time. In terms of computational complexity, this puts the problem at the very bottom of the scale.

My conclusion, therefore, is that the chief obstacle to the generalized implementation of writing systems in a multilingual computing environment has not been inherent computational complexity. Indeed, we have shown that the problem can be reduced to a very simple one in that regard. Rather, the chief obstacle has been the conceptual complexity of the problem. In particular there has been a failure to recognize language and writing system as two essential elements that are distinct from each other and are distinct from script. I am hopeful that this linguistic perspective on the conceptual basis of multilingual computing will help lead us to the solution of a problem which continues to plague our use of computers in a multilingual world.

References

- Anderson, Lloyd B. 1984. Multilingual text processing in a two-byte code. *Proceedings of Coling84, Stanford University, 2-6 July 1984*. Morristown, NJ: Association for Computational Linguistics. Pages 1-4.
- , 1985. Multilingual word processing systems: desirable features from a linguist's point of view. *Newsletter for Asian and Middle Eastern Languages on Computer* 1(1):28-30.
- Apple Computer. 1985. The Font Manager. In *Inside Macintosh*, volume 1, pages 215-240 (with updates in volume 4, pages 27-48, 1986). Reading, MA: Addison-Wesley.
- , 1988. The Script Manager. In *Inside Macintosh*, volume 5, pages 293-322. Reading, MA: Addison-Wesley.
- Becker, Joseph D. 1984. Multilingual word processing. *Scientific American* 251(1):96-107.
- Chomsky, N. 1957. *Syntactic Structures*. The Hague: Mouton.
- Davis, Mark Edward. 1987. The Macintosh script system. *Newsletter for Asian and Middle Eastern Languages on Computer* 2(1&2):9-24.
- Gross, Maurice. 1972. *Mathematical Models in Linguistics*. Englewood Cliffs, NJ: Prentice-Hall.
- Hegazy, W. A. and John J. Gourlay. 1986. Handling context sensitivity in Arabic script. In J. J. H. Miller (ed.), *PROTEXT III: proceedings of the Third International Conference on Text Processing Systems*. Dublin: Poole Press. Pages 125-130.
- ISO. 1973. *7-bit Coded Character Set for Information Processing Interchange (ISO 646-1973), and Code Extension Techniques for Use with the ISO 7-bit Coded Character Set (ISO 2202-1973)*. Geneva: International Standards Organization.

- Johnson, C. Douglas. 1972. *Formal Aspects of Phonological Description*. Monographs on linguistic analysis, number 3. The Hague: Mouton.
- Karlsson, Fred and Kimmo Koskeniemi. 1985. A process model of morphology and lexicon. *Folia Linguistica* 14:207-231.
- Karttunen, Lauri. 1983. KIMMO: a general morphological processor. *Texas Linguistic Forum* 22:163-186.
- Kay, Martin. 1983. When meta-rules are not meta-rules. In Karen Sparck Jones and Yorick Wilks (eds.), *Automatic Natural Language Parsing*. Chichester: Ellis Horwood Ltd. Pages 94-116.
- Koskeniemi, Kimmo. 1983. *Two-Level Morphology: a general computational model for word-form recognition and production*. Department of General Linguistics, University of Helsinki. Publication number 11.
- Nakanishi, Akira. 1980. *Writing systems of the world: alphabets, syllabaries, pictograms*. Rutland, VT: Charles E. Tuttle Co.
- Partee, Barbara Hall. 1978. *Fundamentals of mathematics for linguistics*. Stamford, CT: Greylock Publishers.
- Sampson, Geoffrey. 1985. *Writing Systems: a linguistic introduction*. Stanford, CA: Stanford University Press.

XI

LANGUAGE ACQUISITION

WHY DO POLISH IMMIGRANT CHILDREN IN FRENCH CANADA MAKE
ERRORS IN THE USE OF THE POSSESSIVE PRONOUN "SWOJ"?
ON POSSESSIVES IN POLISH, FRENCH AND ENGLISH.

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The first clearly noticeable trace of interference observed on the level of syntax in the native language of Polish immigrant children in French Canada is found in the systematic error they make using the reflexive possessive "swój" [1]. Six to thirteen year olds, immersed in the bilingual reality of the society they live in, with a substantially greater exposure to French than English, since French is the language of their school education in the province of Quebec, repeatedly misapply the Polish possessive "swój", wrongly substituting it for the correct forms "jego/jej" in ungrammatical sentences such as:

(1) * Swój tata gra w tenisa.

= His father plays tennis.

produced in place of the correct:

(2) Jego tata gra w tenisa.

= His father plays tennis.

Why French and English, i.e. the languages of school and the social interaction, affect the children's native Polish so easily in this particular area of syntax is the question I will try to answer in this paper. To explain the nature of the error considered, the system of possessive pronouns in Polish has to be compared with the possessive pronoun systems of French and English.

The term "possessive pronoun" is used in the grammars of English, French and Polish with basically the same semantic definition. Possessives (i.e. possessive pronouns and/or adjectives) indicate appartenance or possession of the object they describe to or by a given person. Since their basic meaning is that of pointing to the possessor of the object defined they belong to the class of deictic expressions. In this paper I will be chiefly concerned with the possessives that precede nouns denoting objects possessed. French grammars refer to them as "adjectifs possessifs", English grammars employ the term "possessive pronouns" or "possessive adjectives" while the grammars of Polish always call them "possessive pronouns" ("zaimki dzierżawcze").

In English, the possessives in question are: my, your, his, her, its, our, their and they correspond to the personal pronouns: I, you, he, she, it, we, they, respectively. The first person possessives(my/our) point to the speaker as the possessor of the described object, the second person possessive (your) ascribes the possessed object to the listener, and the third person possessives (his/her,its/their), differentiated for gender in the singular, indicate the possessor mentioned in the preceding (or sometimes following) linguistic context by means of a noun or a

third person pronoun, assuming its gender and number inflection regardless of the gender and number characteristics of the noun denoting the object possessed. Cf.,

(3) John is watching his daughters.

(4) Mary is reading to her son.

(5) Brian loves their little house.

In (3), the possessor noun "John" is [+ masculine] and therefore the possessive "his" is also [+masculine]; in (4) the possessive pronoun "her" agrees in gender and number with the possessor noun "Mary", both being [+feminine, +singular]. Let us note that in (5) the possessive "their" does not agree with the subject noun "Brian" in number which indicates that Brian is not the possessor the speaker had in mind, although (on the reading where Brian and their are coreferential) the house talked about in the sentence is clearly understood to be owned by Brian. What the possessive "their" refers to is a group of owners (e.g. Brian and his family), not just one single member of it. The plural possessive "their" indicates that a collective possessor has been thought of although only a single representation of the conceived plurality has been expressed. It has to be made clear that the so-called number agreement of the possessive pronoun with the possessor does not relate the possessive pronouns and the possessor nouns or pronouns in the actual sentence but that it reflects the conception of the possessor in the speaker's mind [2].

In French, each grammatical person has a possessive word corresponding to the personal pronoun representing this person. Thus, we have singular and plural first person possessives: mon/ma, mes (je), notre, nos (nous), singular and plural second person possessives: ton/ta, tes (tu), votre, vos (vous), and the singular and plural third person possessives: son/sa, ses (il,elle) and leur,leurs (ils,elles). French possessives agree with the possessor in grammatical person but they assume the gender and number inflection of the noun they describe. Cf.,

(6) Robert a apporté sa composition.

[+masc] [+fem] [+fem]

= Robert has brought his composition.

(7) Elle aime son mari.

[+fem] [+masc] [+masc]

= She loves her husband.

(8) Tu regardes tes livres.

[+sg] [+pl] [+pl]

= You are looking at your books.

The possessives discussed always appear in the attributive, prenominal position. They cannot be detached from the head-noun they modify and this syntactic characteristic along with their inflectional morphology makes them similar to attributive adjectives and justifies the name of "possessive adjectives" they are given by grammarians.

Polish also has separate lexemes to indicate possession but only with reference to the first and the second person pronouns. They are possessives: mój/nasz and twój/wasz denoting the singular and the plural first person pronouns: ja/my and the singular and plural second person pronouns: ty/wy, respectively. The third

person Polish pronouns do not have possessive lexemes of their own. To point to a third person possessor, the genitive jego, jej, ich forms of the third person personal pronouns on/ono, ona, oni/one are used. Cf.

- (9) a. (Polish) Mój ojciec ma 40 lat.
 =(English) My father is 40 years old.
 =(French) Mon père a 40 ans.
- b. (Polish) Twój ojciec ma 40 lat.
 =(English) Your father is 40 years old.
 =(French) Ton père a 40 ans.
- c. (Polish) Jego/jej ojciec ma 40 lat.
 =(English) His/her father is 40 years old.
 =(French) Son père a 40 ans.

As to their morphological characteristics, Polish possessives mój, twój, nasz, wasz behave just as the French possessives: mon, ton, son, mes, tes, ses, i.e. they assume the inflection of the noun they precede agreeing with it in gender and number (as the French possessives do), and additionally, in case. Cf.,

- (10) Oddałem list twojemu bratu.

[+ sg]	[+sg]
[+masc]	[+masc]
[+DAT]	[+DAT]

= I gave the letter to your brother.

= J'ai donné la lettre à ton frère.

The genitive forms: jego, jej, ich do not change their morphological characteristic to accept the inflection of the noun they describe. Not only do they agree with the possessor in person but they also show the possessor's number and gender. This is the characteristic they share with the possessives in English. In (11) below, Magda is the possessor. Cf.,

- (11) Magda ma brata. Jej brat jest lekarzem.
 [+fem] [+fem] [+masc]
 = Magda has a brother. Her brother is a physician.
 [+fem] [+fem] [+masc]
 =Magda a un frère. Son frère est médecin.
 [+fem] [+masc] [+masc]

Yet, there is an important syntactic difference between the Polish possessives and the English ones. Polish possessives can appear alone, unaccompanied by an immediately following noun, to function as predicatives (12a), objects (12b) or subjects (12c) whereas their English equivalents cannot do so without a change in form. Cf.,

- (12) a. To jest jej dom. Ten dom jest jej.
 =This is her house. This house is hers.
 *her
- b. Jego ogród już widziałam. Teraz chcę zobaczyć twój.
 =I've already seen his garden. Let me see yours now.
 *your
- c. Jej żakiet leży na krześle. Mój wisi w szafie.
 =Her jacket is on the chair. Mine is in the closet.
 *my

If we accept the categorial distinction made in Guillaume's theory (Guillaume 1984:119-122) between substantives (words that have internal support for their meaning and do not need to transport this meaning to a support outside themselves) and adjectives (words with external incidence, which have to transport their meaning to a support outside their own meaning) the fundamental theoretical question that is immediately raised is that of the categorial status of possessive pronouns in terms of the internal/ external incidence opposition.

In French, the case is clear. Mon/ton/son possessives are adjectives without a shade of doubt: their dependence on the outside nominal element they precede is shown by the fact that they cannot occur in sentences without a following NP. Cf.,

(13) a. C'est mon cahier. Ce cahier est a moi.

*mon

=This is my notebook. This notebook is mine (to me).

b. Donne-moi ton stylo. Le mien est brisé.

*Mon

=Give me your pen. Mine is broken.

In addition, they adopt the inflectional morphology of the head-nouns they describe (as do French bona fide adjectives) a fact which links them with the following nouns in formal appearance, thus confirming their close relationship.

English possessives are morphologically independent of the possessed object nouns they precede. It seems logical to assume that the third person possessives in English are pronominal substitutes for nouns in the Genitive case (John's book = his book; John and Mary's book = their book). The problem of the categorial status of the genitive in Modern English has been addressed in a recent paper by Hewson (Hewson 1988) who concludes that the English Genitive represents a case of "syntactic complexity that is not easy to solve", for the form can be both dependant on the following nominal (playing the role of its "import") or it can serve as support to the following nominal being a substantive itself ("le genitif de l'anglais moderne ... peut jouer le rôle ou d'apport ou de support au substantif ou syntagme nominal qui le suit, ce qui présente une complexité syntaxique qui n'est pas facile à résoudre") (Hewson 1988:9).

English possessives, however, do not show the categorial ambiguity present in the genitive even if they are considered as equivalents of the genitive. As the examples in (12) have demonstrated, English possessives change their lexical form when they change category. In spite of their independent inflectional morphology, which seems to dissociate them from the following NP's, English my/your/his possessives can be described as belonging to the Guillaumian category of adjectives, for they cannot, on their own, function as independent subject or object NP's. Each of them has a corresponding substantival form (mine,yours,his,hers,its,ours,theirs) marked by the presence of "s" in all but one case.

The first and the second person Polish possessives: mój,twój,nasz,wasz have the number, gender and case inflection of the nominal denoting the possessed object. This agreement constitutes

strong evidence for their dependent, i.e. adjectival status. Polish attributive adjectives (like French adjectives) always adopt the complete inflectional morphology of the head-nouns they modify. (Cf. example 10) Lack of such agreement, especially in case markings, which can be observed in NP's such as e.g. "los[+sg,+NOM] biednych [+pl,+GEN]" (= the fate of the poor) is the first indication of the substantival status of the adjective. Unlike their French equivalents, Polish adjectival possessives can occur alone in the function of predicatives, objects or subjects (cf. Polish examples in 12 and French examples in 13). This fact, however, does not provide sufficient evidence to claim that Polish mój/twój possessives are substantives. When they function as objects or subjects they are always used contrastively, with the nominal that supports their meaning still present in the speaker's mind for it has been mentioned in the closely preceding context (Cf. the context defining sentences necessary to interpret the examples of 12). We can also observe that Polish mój/twój possessives are less independent than the English substantival pronouns: mine, yours, hers...etc. They can be separated from their heads even to the point of functioning as sentence subjects or objects but they cannot be used cataphorically. Example (13) cannot be translated into Polish with a cataphoric possessive:

(14) (English) Ours is a bigger house.

(Polish) *Nasz jest większy dom.

= Nasz dom jest większy. (Our house is bigger)

The categorial status of the third person jego/jej/ich 'substitute' possessives is more difficult to determine. The forms: jego, jej, ich do not assume the inflectional characteristics of the nominals they describe. They agree in person, gender and number with the possessor and they don't change their genitive case form. Cf.,

(15) a. Jego tu nie ma.

[+GEN]

=He is not here.

b. Jego siostra jest tutaj.

[+poss]

=His sister is here..

The question arises whether "jego" in (15a) and "jego" in (15b) represent the same category. At least two facts can be found in support of the claim that they do not: 1. The Genitive "jego" and the possessive "jego" are used in reply to different question words: "kogo?(who/whom?)" in the genitive use and "czyj?(whose?)" in the possessive use. Cf.,

(16) a. Brakuje mi jej bardzo.

=I miss her a lot.

b. Kocham jej uśmiech.

=I love her smile.

Kogo mi brakuje?

=Who/whom do I miss?

Czyj uśmiech kocham?

=Whose smile do I love?

2. The Genitive "jego" is substituted by its short form: "go" in unstressed positions while the possessive "jego" has no short form substitute. Cf.,

(17) a. Jego podziwiam, a tobą gardzę. Podziwiam jego odwagę.

=Him I admire but I despise you. =I admire his courage.

b. Zawsze go podziwiałam. Podziwiałam jego wole.

*?jego

*go

=I've always admired him.

=I admired his will.

We can conclude that in spite of the identity in form with the third person pronoun genitives, Polish possessives: jego, jej, ich are not personal pronouns in the genitive as some Polish grammars would have it (Buttler et al. 1978). While the jego-genitives clearly represent the category of the substantive, the status of the jego-possessives resembles the status of the mój/twój adjectival possessives despite their morphological dissimilarity.

Beside the mój/nasz, twój/wasz and jego/jej/ich possessives Polish has another possessive form represented by the reflexive pronoun: swój. Swój has the inflectional and categorial characteristic of the mój/twój possessives as it agrees in number, gender and case with the noun denoting the possessed object. What distinguishes it from the mój/twój pronouns is the fact that swój is not associated with any particular personal pronoun. It can refer to the first, second or third person possessor, and is therefore often described as the "general possessive" ("zaimek ogólnodzierżawczy") in contrast to the mój/twój "personal possessives" ("zaimki osobowo-dzierżawcze"). Cf.,

- (18) a. Lubię swoją pracę.
 =I like my job.
 =J'aime mon travail.
 b. Daj mi swój adres.
 =Give me your address.
 =Donne moi ton adresse.
 c. Jan myje swoje auto.
 =John washes his car.
 =Jean lave sa voiture.

Thus, in Polish, unlike in English or French, the relationship of appertenance or possession can be expressed by two pronominal possessives for each of the three grammatically possible persons of the possessor: by mój/nasz or swój for the first person possessor, twój/wasz or swój for the second person possessor, and jego/jej/ich or swój for the third person possessor.

The vital question concerning the error under consideration is that of the distribution of the two possessive forms available for each person. Are these forms alternating freely or are they mutually exclusive? What conditions govern the application of swój rather than mój, twój or jego? Does the fact that Polish has two possessive pronoun options for each person render the expression of reference by possessives more accurate?

The general, handbook principle defining the application of the possessive swój in Polish says that swój should be used when the possessor is the subject of the sentence containing the possessive. In the examples below, with the first, second and third person possessor subjects the possessive swój is the only grammatical possibility. Cf.,

- (19) a. Mam swoje problemy.
 =I have my problems.
 =J'ai mes problèmes.
 b. Weź stąd swoją torbę.
 =Take your bag away from here.
 =Enlève ton sac d'ici.

c. Maria lubi swój pokój.

=Mary likes her room.

=Marie aime sa chambre.

Swój is also used with the so-called "impersonal" subjects. Cf.,

(20) Trzeba znać swoje wady.

=It's necessary to (one should) know one's vices.

=Il faut connaître ses défauts.

Since the possessive swój has to refer to the subject of the sentence, it is only natural that it cannot appear in the subject NP itself. For swój to be used, the possessor must be the subject of the sentence or clause (including infinitival and participial clauses) containing the swój-modified NP. This condition explains why mój/twój/jego possessives and their mon/ton/son and my/your/his equivalents in French and English are possible in subject NP's while the Polish possessive swój is not. Cf.,

(21) Mój/twój/jego tata gra w tenisa.

*Swój

=My/your/his father plays tennis.

=Mon/ton/son père joue au tennis.

(22) Janek wie, że jego mama wyjechała.

*swoja

=John knows that his mother has left.

=Jean sait que sa mère est partie.

The fact that swój identifies the possessor of the object it describes by pointing to the subject of the sentence helps to interpret pronominal reference more accurately in sentences with more than one NP that could denote possible possessors. Since the possessives jego and swój point to different possessors, Polish sentences in (23) have one precise interpretation while their English and French equivalents are ambiguous. Cf.,

(23) a. Henryk nie wie, że Jan zabił jego żonę.

b. Henryk nie wie, że Jan zabił swoją żonę.

=Henry doesn't know that John has killed his wife.

=Henri ne sait pas que Jean a tué sa femme.

Sentence (23a) differs from sentence (23b) in meaning but both have only one possible translation in English or French. The pronouns his and sa in the English and French sentences, point to either Henry or John as the husband of the murdered wife, whereas pronoun jego in the Polish sentence (23a) clearly identifies Henry as the widower while swój in example (23b) indicates that John has murdered his own wife, for John is the possessor subject of the clause containing "wife".

The familiar ambiguity between subjective and objective interpretations of the Genitive followed by a deverbal nominal ("amor Dei", "Caesar's murder", "the shooting of the hunters") is solved in Polish when such Genitive expressions are preceded by swój or jego possessives. Cf.,

(24)a. Z powodu oskarżenia swojego brata poszedłem do sądu.

b. Z powodu oskarżenia mojego brata poszedłem do sądu.

=Because of my brother's accusation I went to court.

=A cause de l'accusation de mon frère je suis allé à la Cour.

The use of swój in (24a) points to the speaker as the subject of the deverbal nominal: "accusation", meaning that the speaker accused his brother. Mój in (24b) shows that the speaker is not the subject of "accuse" in the nominal: "accusation". The sentence can mean that the brother accused the speaker or that somebody else accused the speaker's brother.

The principle requiring that swój substitute for the other possessives whenever the possessor is the subject of the sentence does not always apply. In the sentences of (25) both swój and nasz are used with reference to the same subject possessor but the use of different pronouns causes a meaning difference between the two examples. Cf.,

- (25) a. Kochamy swoje dzieci.
 b. Kochamy nasze dzieci.
 =We love our children.
 =Nous aimons nos enfants.

In both sentences of (25) the subject the possessives referred to is "my" (=we). Yet, in sentence (25a) "my" denotes a couple as the sole possessor of their own children, whereas in (25b) "my" has a more extended reference indicating a group of people, including many parents, who are talking about all of the children in the group. ("We, citizens of this country, love all the children in our country" would be a suitable situational interpretation here). We can say that in sentences where either swój or a person specified mój/twój/jego possessive can be used the referring function of the two possessives is identical: they point to the subject nominal as the possessor. The different form of the two possessives, however, also tells us that the speaker's mental interpretation of the possessor was different in each case.

Sometimes, both possessive forms can be used with reference to the same subject yet the difference between the exclusive and the common interpretation of the possessor is not felt. Swój may be chosen to emphasize the idea of possession (and it's only then that it means "one's own") or it may be selected to contrast the possessor with some other possessor implied by the speaker. In literary style the choice of the possessive is sometimes a matter of mere idiolectal predilection. (for examples see Buttler et al. 1978:379). Systematic research needs to be done in this area. What might be of relevance to the main topic of this paper is the observation that the cases of free use of swój or jego/jej/ich with reference to the third person subject possessor are rare which can be explained by the tendency to avoid the ambiguity pronoun jego is likely to introduce. In (26a) and (26b) below, possessives mój and twój cannot refer but to the same possessor as that indicated by the possessive swój, i.e. the speaker in (26a) and the listener in (26b). In (26c), however, jego cannot be used with reference to the subject possessor Janek for it already has a referent. The sentence is grammatical when jego denotes some other third person possessor, different from the subject Janek. Cf:

NOTES

[1]. I made note of the error in question in the Polish of eight school-age children I observed in Montreal. The children were all born in Poland and they came to Canada with the recent 1981-1984 wave of the so-called "Solidarity" emigration. They speak Polish at home and they learn to read and write it in one of the Polish Saturday schools in Montreal.

[2]. The problem of the possessor-possessive number agreement signalled here is similar to the problem of the subject-verb agreement in English discussed in Hirtle (1984). Hirtle argues that the term "agreement" does not apply to the morphological markers of the grammatical singular or plural in discourse but to the reading of the word's number in the speaker's mental image of the word in question. Similarly, the possessor does not have to be represented by a noun or pronoun in the actual sentence for the speaker to be able to use a corresponding possessive. The possessive present in the sentence expressed by the speaker refers to the image of the possessor in the speaker's mind and its form reflects the characteristics of this image, not of the grammatical form representing this image in discourse. How exactly the possessive and the mental image of the possessor agree needs to be defined in terms of a concrete linguistic model for which Guillaume's theory seems to provide a good foundation.

REFERENCES

- Buttler, D., Kurkowska, H., Satkiewicz, H. 1973. *Kultura języka polskiego*. Warszawa: PWN
- Guillaume, G. 1984. *Foundations for a Science of Language*. Amsterdam and Philadelphia: John Benjamins
- Hewson, J. 1988. "Le cas génitif de l'anglais moderne". Presented at the 1988 Colloque de psychomécanique in Cerisy, France.
- Hirtle, W. 1984. "L'accord en anglais et l'incidence du verbe au sujet". *Modeles Linguistiques VI*, 2, 99-108
- Słownik języka polskiego*. 1978. Warszawa: PWN

COMMUNITY EXPECTATIONS AND SECOND LANGUAGE ACQUISITION--

ESL IN AN AMISH SCHOOL *

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The Old Order Amish school off route 812, near Kendrew Corners, outside of Rennselaer Falls, New York, is typical of Old Order Amish parochial schools. A one-room building flanked by outhouses and heated by a wood stove, it is attended by approximately fifteen students in grades one through eight. The teacher sits at the front, and when the "scholars" come to the front to recite their lessons they sit on the benches that line the walls on each side of her desk. The students not reciting sit in rows, grouped by grades, facing the teacher and the blackboard behind her (cf. Hostetler & Huntington, 1971: 40-42). In any given year not all grades may be represented. Most students have at least one sibling in the school, and, since the Kendrew Corner School serves only five or six families, many have two or three. This particular Amish community, which was founded approximately fifteen years ago by members of the conservative Swartzentruber sect, does not make use of school buses, so there are a number of one room schools in the area, and new ones are built as the need arises. The Kendrew Corners school was built two years ago on the outskirts of an Amish farm. There is, of course, no electricity, telephone service or indoor plumbing.

The curriculum of the Kendrew Corners school is also typical of Old Order Amish schools (cf. Hostetler & Huntington, 1971:42-47). Students learn phonics, spelling, reading, and arithmetic from such texts as the McGuffey, the Scott-Foresman New Basic Readers, and Pathway readers, the Lippencott Reading with Phonics text, and the American Book Company's Strayer Upton Practical Arithmetic series. At the same time, like many rural Amish school children, they must also learn English.

Although most of the students know little or no English when they first enter Kendrew Corners schools, studies suggest that by the time they complete their schooling at the end of the eighth grade, they will perform as well as, if not better than, their non-Amish counterparts at rural public schools on tests of spelling, word usage, and arithmetic (Hostetler, 1969; Hostetler and Huntington, 1971¹; they will certainly be able to engage in social conversations and business with their non-Amish neighbors, read novels and newspapers in English, and carry on an extensive correspondence in English with members of other Amish communities in the United States and Canada. In short, in eight years of schooling, the Kendrew Corners school children will acquire English well enough to interact and compete successfully with native English speakers in an English

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environment. They will have done so with little formal language instruction, limited opportunity to use the language either in school or outside, no special language texts, and with the assistance of a teacher with only an eighth grade education, who, herself, learned English in an Amish school.

That Amish children successfully acquire English under circumstances that any trained linguist or language teacher would describe as, at the very least, less than ideal can be better understood through a study of the roles of English and formal education in the Amish community. Both are viewed as necessary to prepare Amish children to function in the outside, "English" world, yet both also work to preserve and strengthen the community and, thus, to keep the English world at bay.

Littlewood (1984) distinguishes between second language learning and foreign language learning, the first term indicating that the language has communicative functions within the community and the latter meaning the language will be used primarily for communication with outsiders (54). In the Swartzen-truber community, as in other Old Order Amish communities, English learning is both. Like most Old Order Amish and Mennonite groups, the Swartzen-truber community is bilingual and diglossic (cf. Huffines, 1980; Johnson-Weiner, 1986), using a variety of Pennsylvania Dutch (called [day $\int$] within the home and with other Amish and using English for interaction with outsiders. For the Amish, English is, as one Old Order Amishman has written, the language associated "with the business world, society and worldliness . . . everything outside our church and community, the forces that have become dangerous because they make inroads into our churches and lure people from the faith" (Stoll, 1969: 208). Dutch, on the other hand, defines the community, and the use of Dutch within the community and English outside it serves as an ever-present reminder of the differences separating the Amish from their "English" neighbors. Dutch may well be, as Keim (1975:9) asserts, "the single most effective element in the continuity of the Amish community." Ironically, however, since Dutch is not written, an Amish person who knew only Dutch would be hindered in all but face-to-face interaction with other Amish and, thus, could play only a limited role in the community; for all written communication within the Amish community and with Amish elsewhere, the Amish use English. Thus, among the Amish, spoken English is identified with the outside world from which the Amish separate themselves, whereas written English plays a vital role in intra-group communication.

A number of researchers have suggested that a major factor in the success or failure of second language learning is the extent to which the learner is motivated by communicative needs that are functional in nature (e.g. the need to carry out business transactions or relay messages) as opposed to social (e.g. the desire to become involved with the second language community) (cf. Littlewood, 1984: 70-71; see also Gardner, 1985). Thus, one would expect the dual role of English and the conflicting way in which it is perceived to influence the learning and

teaching of English in Amish schools, favoring written English over spoken English (cf. Littlewood, 1984:70). Among the Amish, however, the two are not separated; the teacher does not think in terms of "oral" versus "written" language exercises, and it is generally assumed that acquisition of the one will be reflected in acquisition of the other. As one Amish girl told me, "in some schools they don't have to talk English as much and they don't learn it as much. You can see it in their writing. It's so terrible you almost can't read it" (M. Y. 6/88).

Instruction in both oral and written English begins the first day of school. The teacher not only uses English with the older students or 'scholars', but also addresses remarks in English to the new first graders. In teaching the first grade the teacher will give a command in English and then repeat it in Dutch. When first-graders ask questions in Dutch, these are repeated by the teacher in English. The greatest portion of the first-graders' time is not, however, spent in oral interaction with the teacher but in individual tasks, for the teacher has seven additional grades to teach; nevertheless, since these lessons will all be in English, the first-graders have the opportunity to listen to numerous, highly structured exchanges in English. The Amish teacher does not appear to see herself as a language teacher, and, indeed, the approach to teaching English is similar to that taken in teaching arithmetic or geography. As one teacher describes it, it is just a matter of "giving the first-graders the words." "I say it in English to them [the first graders]. I talk English to the rest [of the students] and they [the first graders] pick it up that way too." Her worst problem, she noted, was just "to keep them straightened out" (L. M. 6/88). If a student makes a mistake, either in writing or in speaking, he is corrected. There is no drill work, although if the error is repeated on assignments, the student may have to rewrite. The first clearly stated linguistic goals are not oral fluency, increased ability to comprehend spoken English, writing proficiency or even vocabulary expansion, but rather the 'ABCs' and '123s'; these the first graders memorize and practice writing individually and in pairs until they are called to recite them at the teacher's desk or write them on the blackboard. The teacher is always anxious to have these learned for then students are able to go on to arithmetic and phonics. "English" lessons, which focus on grammar or what, in the public schools, would be called "language arts", begin in the third grade, by which time all student-teacher interaction is in English.

Although the Amish child receives no formal language instruction and has fewer opportunities to use English in the classroom than his counterpart in the average second language class at the public school, he may actually be learning in a more natural environment. For example, the Amish child is exposed, from the beginning, to language that is relevant to his immediate needs and interests. Furthermore, although first graders are addressed in language that is simple and repetitive, at the same time they are able to listen to exchanges of varying degrees of fluency, yet

focusing on familiar subjects, as the teacher instructs the other grades. The first grader is, thus, able to put what he learns to immediate use. In short, the situation is similar to that of first language learning, natural rather than formal, and, therefore, perhaps most conducive to learning (cf. Carroll, 1981; Krashen & Terrell, 1983; Littlewood, 1984).

Just as the approach to language instruction favors learning, so does the emotional climate of the classroom; Amish children work towards clearly defined goals in a non-competitive atmosphere. In the Amish community, English is the language of education and the language in which all other subjects (including [haxday] or "church German") are taught. Rather than an obstacle that must be overcome so that the children can get on with their education, it is part of this education, and the teacher, the students will learn both oral and written English. It is also expected that some students will have a harder time of it than others, just as some have a harder time at arithmetic. As one Amish woman told me, after commenting on how she liked English better than arithmetic but her brother felt the opposite, "it's just how they like to learn" (F.S. 6/88). This sentiment was echoed by a former schoolteacher, who noted matter-of-factly that "some are harder to get it [English] into, and some just don't try if you don't press them to work on it harder" (L. M. 6/88). Students are simply encouraged to do their best; as Hostetler and Huntington (1971:57) note, what competition there is in the Amish school is structured to support the group and "the children encourage one another's good performance in order that their whole class or their whole school may do well."²

The Amish attitude towards success and failure in academic pursuits, including the acquisition of English, reflects the emphasis placed by the community on the learning of discipline, community values, and the ability to work with others for the good of the community rather than on the successful achievement of individual goals. As Keim (1975) notes, "The Amish view education as a way to encourage the child to follow instructions, respect authority, and master basic information. They are skeptical of education which stresses engagement, critical thinking, or asking questions. They favor rote learning. The community can survive only if authority and tradition are respected and upheld" (14). In short, for the Amish, formal education is not to prepare a child for a successful career or to make that child a good citizen, but rather to prepare the child "to live for others, to use his talents in service to God and man, to live an upright and obedient life, and to prepare for the life to come" (Stoll, 1975:31; cf. Hostetler, 1980; Hostetler & Huntington, 1971). Children are expected to do the best they can on the subjects that will enable them to function in the outside world because to do so reflects the internalization of values necessary to the maintenance of their own. In such a supportive setting, in which the tasks and goals are clearly defined, students are far less likely to experience the anxiety and insecurity that will inhibit communication and hinder language learning (Littlewood, 1984:58-59).

Ironically, although the attitudes of Amish parents and the community as a whole towards learning and achievement may provide for an atmosphere conducive to learning English (cf. Gardner, 1985: especially ch. 6), their attitudes towards the English community seem to work against it. Indeed, given Schumann's assertion that second language acquisition "is just one aspect of acculturation and the degree to which a learner acculturates to the TL (target language) group will control the degree to which he acquires the second language," (1978:34; cf. Gardner, 1985: 135-137; Lambert, 1967, 1974; Littlewood, 1984; McLaughlin, 1987: ch. 5), Amish children ought not learn English at all, for Amish parents actively discourage their children from identifying with the English world and to the best of their ability limit their contact with it. The Amish parochial school, a response to the school consolidation trend that has threatened to remove Amish children from local one-room schools and place them in larger schools often located some distance away from the community, is a demonstration of this determination to keep the community in general, and the children in particular, separate.

The Amish parochial school is a relatively recent phenomenon, the first having been founded in 1925. Until the movement towards school consolidation, most Amish children attended local one-room schools, which, although public, had allowed parents a measure of control over the classroom they would be denied in the larger, centralized schools. For the Amish, letting the children leave the watchful eyes of the community would be inimical to their survival. As one Amishman put it, "How can we parents expect our children to grow up untainted by the world, if we voluntarily send them into a worldly environment, where they associate with worldly companions, and are taught by men and women not of our faith six hours a day, five days a week, for the greater part of the year?" (Stoll, 1975:28).⁴

Nevertheless, as Hostetler and Redekop (1962) note, "while the school experience is a normal part of life, it remains a part of the domain of the outside world" (198). Like the English language in which it is conducted, the school is an outside institution that plays a necessary role within the community; the Amish parochial school must meet the requirements of the state and, at the same time, further the often opposing interests of the Amish community (cf. Hostetler & Redekop, 1962). It is in the school, taught by a member of the community and watched over by a school board chosen from the community, that Amish children are introduced to the non-Amish, sinful world outside (Hostetler 1963:254). Symbolic of this introduction to the outside world is that children entering school are addressed in English by the teacher, who is, in most cases, a neighbor they know well, or even a sibling, who has never before spoken English to them. Another German-speaking, Anabaptist separatist group, the Hutterites, counteracts the negative influence of the English school by sending their children to "German school" at the same time (Deets 1939; rpt. 1975: 43).⁵ The Amish try to limit the effects of English school by keeping the boundaries between the school and the community

intact. In the Kendrew Corners school, for example, as in the schools of many of the more conservative Amish sects, English ceases to be spoken once lessons end and school is not in session, even if the break is only for recess.⁶ Parents expect their children to learn English, but at the same time to learn that it has its place; as one mother put it, noting that, although she wouldn't mind if her children used some English around the house and with other children and family members, she would not want them to use it too much, "sometimes they do it [speak English] just for fun, but if they do it regularly we make them quit" (M. Y. 4/88).

The teaching of English and the rules governing its use demonstrate clearly the goals of Amish education, namely the perpetuation of the values of the Amish community and the protection of Amish children from the values of the outside. Central to these goals is the concept of separation. As Huntington (1957) points out, "In studying both the negative and positive acculturation of the Amish, it must be remembered that the Amish separated from the North European culture in which they had originated. This is quite a different situation from that of two historically different cultures coming into contact for the first time" (7). Amish children do not learn English to learn more about English culture; in the eyes of the community, the less they know of that the better. They must, however, deal with that culture for the good of the community. To the extent that these restrictions are clear, and English is learned and used accordingly, Amish education succeeds and the community prospers.

The success of Amish language education may present a dilemma for second language researchers. First, the Amish do not fit easily into any category of second language learner. English is a language learned in school, but it is not a school subject; it plays a necessary role in intracommunity interaction, yet it is not the language of the community. Secondly, the Amish appear to have conflicting attitudes towards English and its use. The children learn English, but are taught not to use it too often except at school, where its use is necessarily constrained; they learn English and at the same time learn that the English world is undesirable and they must remain separate from it. Finally, it may be impossible to evaluate Amish language acquisition by the same standards as are used to evaluate second language acquisition in mainstream American schools. Gardner (1985), for example, includes in a definition of second language achievement "a desire on the part of the students to further their knowledge of the second language and an interest in making use of any opportunity which arises to improve proficiency" (13); clearly, given this definition, Amish second language achievement is limited and likely to remain so.

Nevertheless, a study of the Amish suggests the importance in second language learning of both community attitudes towards the target language and community expectations of what will be achieved. As Wong Fillmore (1985) has argued, learners must realize that they need to learn the second language and must be moti-

vated to do so. Research of the Amish suggests that motivation may be to preserve a way of life. In direct contrast to Schuman's (1978) view of the relationship between acculturation and language acquisition, language may be acquired as barriers to acculturation are raised.

N O T E S

¹ There is no data on the English acquisition of the Swartzen-truber children attending the Kendrew Corners school because I was not permitted to test the children. In the words of the teacher and the several parents with whom I spoke, "it's not our way." Other researchers have had similar problems when working with the Old Order Amish; for example, Enninger (1987) notes that "In this culture, the choice the field worker has is to work on the basis of the obtainable data, or to gain no insights at all" (149-150). Like Enninger, I have opted for the former alternative. Assessments of Amish achievement are based on my own observations of classroom activity, recitations, and written work as well as on conversations with students in all grades. Predictions of Amish achievement are based on the results of studies reported by Hostetler (1969), Hostetler & Huntington (1971), and Erickson (1975).

² Expecting every child to learn English, yet acknowledging that some will learn it more easily than others and like English better than other subjects, reflects the Amish belief that "an individual's talents are God-given," and that "therefore, no one should be praised if he is an easy learner nor condemned if he is a slow learner" (Hostetler & Huntington, 1971: 57). Grades are based on the percentage of correct responses, not on how well a student does in relation to others; there is no class curve.

³ The first Amish or Mennonite private school was the Apple Grove Mennonite Private School, later called Apple Grove Amish Parochial, in Dover, Delaware, which opened its doors in January 1925. In a 1965 article in The Blackboard Bulletin, Effie Mast Troyer and Joseph Stoll note that Apple Grove was not started ". . . as some historians have deducted, because of the flag salute law which was passed in 1925. Nor was it because of any particular disagreement with the public schools as they had existed up to that time. Instead, the problem seems to have been one of consolidation of school districts. . . . The fact that the Delaware schools would now teach only grades one through six instead of the former eight grades is probably the foremost reason the Amish established a private school. Grades seven and eight would be transported to larger schools in town. This the Amish definitely did not want."

Rpt. in The Challenge of the Child: Selections From "The Blackboard Bulletin" 1957-1966. Aylmer, Ontario, Canada: Pathway Publishing Corporation, 1967, pp. 94-98.

⁴ By establishing parochial schools, the Amish have ensured that the school is another field on which the spiritual battle is waged. As Ervin N. Hershberger, an Amishman from Myersdale Pennsylvania writing in The Blackboard Bulletin, a journal for Amish teachers, acknowledges, "the public schools are better equipped" to teach "the 3 R's" (sic) than the Amish ones," yet, he asserts, "the Amish schools must do more" (1958:68-69). As another Amishman put it, in an anonymous 1959 editorial in The Blackboard Bulletin (rpt. in The Challenge of the Child: Selections from "The Blackboard Bulletin" 1957-1966, Aylmer, Ontario, Canada: Pathway Publishing Corporation, 1968, p. 69) in the parochial schools the Amish "have the privilege of teaching the regular branches, and at the same time we can interweave the doctrine of God, Christ, and the Church in all our studies, even in arithmetic". See also "Is It Worth the Effort," an editorial published in The Blackboard Bulletin, January, 1961. Rpt. in The Challenge of the Child, pp. 75-77. The editorial argues that to make the Church "blight-resistant" "we must wage a spiritual battle on three fields: 1. The church, represented by the ministry; 2. The home, represented by the parents; 3. and the church school, represented by Christian teachers" (76).

⁵ As Deets put it, "The contemporary German school is like a blanket of counter-indoctrination thrown around the English school session. It is usually held a half hour before and a half hour after each session of the standard school" (43).

⁶ Amish communities vary in the extent to which English is used during recess. As Hostetler & Huntington (1971) note, "the majority of schools encourage the use of English during recess, for the teachers believe it helps the children become fluent in English" (48); in the Plumbrook Parochial School, which serves the Old Order Amish community in Norfolk, New York, approximately 40 miles away from the Swartzentruber community in Rensselaer Falls, children are required to speak English on the playground for this reason. As Hostetler & Huntington note, however, some parents worry that the children will become too used to using English and begin to use it among themselves in preference to Dutch; this has, indeed, become a concern for the Norfolk Amish (cf. Johnson-Weiner, 1986).

References

- Anonymous. 1959. Editorial. Rpt. in The Challenge of the Child: Selections From "The Blackboard Bulletin" 1957-1966. Aylmer, Ontario, Canada: Pathway Publishing Co., 1967, 69.
- Carroll, J. B. 1981. Conscious and Automatic Processes in Language Learning. Canadian Modern Language Review, 37 (3), 462-74.
- Deets, Lee E. 1939; rpt. 1975. The Hutterites. Philadelphia, PA.: Porcupine Press.
- Enninger, Werner. 1987. On the organization of sign-processes in an Old Order Amish (OOA) Parochial School. Research on Language and Social Interaction, vol. 21, 143-170.
- Erickson, Donald A. 1975. The Persecution of LeRoy Garber. In A. N. Keim (ed), Compulsory Education and the Amish. Boston, MA: Beacon Press, 84-92.
- Gardner, R. C. 1985. Social Psychology and Second Language Learning. Baltimore, MD: Edward Arnold.
- Hershberger, Ervin N. 1958. Why do we have our own schools? Rpt. in The Challenge of the Child: Selections From "the Blackboard Bulletin" 1957-1966. Aylmer, Ontario, Canada: Pathway Publishing Co., 1967, 67-69.
- Hostetler, John A. 1963; rpt. 1980. Amish Society. Baltimore, MD: The Johns Hopkins Press.
- Hostetler, John A. 1969. Educational Achievement and Life Styles in a Traditional Society, The Old Order Amish. Washington, D. C.: U. S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research.
- Hostetler, John A. & Gertrude E. Huntington. 1971. Children in Amish Society. Socialization and Community Education. New York: Holt, Rinehart and Winston, Inc.
- Hostetler, John A. & Calvin Redekop. 1962. Education and Assimilation in Three Ethnic Groups. In Alberta Journal of Educational Research, 8(4), 189-203.
- Huffines, Mary Lois. 1980. Pennsylvania German: Maintenance and Shift. In International Journal of the Sociology of Language 25, 43-57.

- Huntington, Abbie Gertrude Enders. 1957. Dove at the Window: A Study of an Old Order Amish Community in Ohio. Unpublished Ph.D. Dissertation, Yale University.
- Johnson-Weiner, Karen M. 1986. Keeping Dutch: Linguistic Heterogeneity and the Maintenance of Pennsylvania German in Two Old-Order Amish Communities. Paper presented at the 1986 Modern Language Association Convention session on Language Change in Progress, December, 1986, New York.
- Keim, Albert N. 1975. From Erlanbach to New Glarus. In A. N. Keim (ed), Compulsory Education and the Amish. Boston, MA: Beacon Press, 16-42.
- Krashen, Stephen D. & Tracy D. Terrell. 1983. The Natural Approach. Elmsford, NY: Pergamon Press, Inc.
- Lambert, Wallace E. 1967. A social psychology of bilingualism. In Journal of Social Issues, 23, 91-109.
- Lambert, Wallace E. 1974. Culture and language as factors in learning and education. In F. E. Aboud & R. D. Meade (eds), Cultural Factors in Learning and Education. Bellingham, WA: Fifth Western Washington Symposium on Learning.
- Littlewood, William. 1984; rpt. 1985. Foreign and Second Language Learning. Language Acquisition Research and Its Implications for the Classroom. New York: Cambridge University Press.
- McLaughlin, Barry. 1987. Theories of Second Language Learning. Baltimore, MD: Edward Arnold.
- Schumann, J. H. 1978. Social and psychological factors in second language acquisition. In J. Richards (ed), Understanding Second and Foreign Language Learning: Issues and Approaches. Rowley, MA: Newbury House.
- Stoll, Joseph. 1969. Editorial. In The Blackboard Bulletin, May, 1969, 208.
- Stoll, Joseph. 1975. Who shall educate our children? In A. N. Keim (ed), Compulsory Education and the Amish. The Right Not to Be Modern. Boston, MA: Beacon Press, 16-42.
- Wong Fillmore, Lily. 1985. Second language learning in children: a proposed model. In R. Eshch & J. Provinzano (eds), Issues in English Language Development. Rosslyn, VA: National Clearing for Bilingual Education.

ELICITING STRATEGIES IN TRILINGUAL LANGUAGE ACQUISITION

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What can it mean to raise a child bilingually - or trilingually? If we're going to do some realistic planning and actual implementation what is the cost in terms of time and energy if the effort is to be successful?

Each case is very different depending on the circumstances and the personalities involved. In the particular case that I will present, the child learned three languages simultaneously, acquiring Hungarian, English and German by the age of three.

The child called Christian was an avid learner and had an intellectual curiosity that was not merely vigorous, but vehement. I mention this for two reasons:

(1) to stress that he may not be a typical learner (his practically insatiable request for input causes his mother to call him charitably a "difficult child")

(2) to point out the time and patience that a parent may have to invest, especially if raising the child bilingually or trilingually without benefit of a supporting speech community.

Background

Christian lives in a small West German town and is the child of a German father, Herbert, who is trilingual in German, English and French. His wife is my sister Judy who is American, and also trilingual, speaking Hungarian, German and English.

In terms of planning, Christian was to be a bilingual child, but the parents could not agree on which two languages to choose. From a practical aspect, both parents agreed that German would certainly be one of the languages. It was with the second language that there was a problem in agreement.

The father argued that it would be most practical for the child to learn English - the world language. Judy reminded Herbert of prenuptial talks during which she had insisted on the importance of Hungarian for her side of the family. It was agreed that family harmony dictated the imposition of a third language. So what started as a bilingual plan became the trilingual kid.

No one knew if and how this would work, but the plan was the following:

The mother would talk exclusively Hungarian with the child.

The father would talk exclusively English with him.

Both parents would talk exclusively English with one another.

Since they live in Germany, contact with the community would be sufficient for Christian to learn German, so the parents decided that it was not necessary for them to speak German with him at

all.

I was teaching at the time in a bilingual preparatory school in West Germany and saw Christian every few months from the time he was 1.2 to the age of 3.2. I noted several very interesting strategies the child used to elicit linguistic input from his parents. Other than the brief holidays during which I visited, Christian's sole linguistic contact for Hungarian was his mother, and for English, it was primarily his father. He was essentially raised in linguistic isolation with only one contact person for two of his three languages. However, since the language of communication between father and mother was English, he received English input passively from both parents.

I will briefly focus on three eliciting strategies which enhanced Christian's opportunity (a) to receive meaningful input and (b) to rehearse and practice what he heard.

(1) The first strategy was to initiate a kind of translation game with his mother which I dubbed "Papa says."

(2) Nearing the age of three, Christian began to employ a new technique. He elicited predictions of possible outcomes for hypothetical situations. I dubbed this game "But if you..."

(3) The third strategy used by Christian was to forgo asking questions directly, and turn all of them into "fill in the blank" propositions.

Christian's emerging linguistic system was very apparent in his use of these three strategies as he tried to map more and more complex concepts and relationships onto the linguistic code he was mastering.

Although Christian eventually learned three languages, the general order of progression in learning (with much overlap) was: first: Hungarian, second: English and third: German. There was a crucial time between his first and second birthday when Christian spoke almost exclusively Hungarian, since he was cared for most often by his mother. Since Hungarian is not one of the father's languages, he often felt frustrated and shut out from communicating with his only child. Christian's mother was in the hospital for about ten days during which the linguistic barrier between father and child was very apparent. I was asked to come for a visit during that time to help out.

There was an episode during which Christian decided he was thirsty and from the playpen demanded something to drink -- in Hungarian: "Kérek inni!" My sister had warned me not to play the meddling aunt while she was gone, so I stayed out of it and watched the father successively giving his child toys from the floor near the playpen, cookies from the kitchen and finally the potty amidst increasingly shrill demands for something to drink. Only by the fifth try did the father holler in frustration: "Was will das Kind?! - and at that point, I stepped in.

By the age of 2.5, Christian became aware that while his mother's language, when speaking with him, was Hungarian, she could also speak English (with the father) as well as German (with the German environment). He became similarly aware that his father spoke German as well as English, although the father spoke

exclusively English with his son. As I mentioned before, the parents communicated almost exclusively in English with each other.

I will briefly describe three eliciting strategies used by Christian to keep the conversation going and to elicit interesting or entertaining responses.

The first strategy exhibited the metalinguistic awareness mentioned before. Christian liked to play a translation game with his mother; he was the requester, she was the supplier. He had tied the three languages to three particular people: Mama and he spoke Hungarian, so this was the basic language of communication in the beginning. Papa and he spoke English, and he heard the constant verbal interchange of his parents when the father was at home. The German language was represented in the person of little Normi, aged 2.5, a neighbor boy with whom Christian played from time to time. I will be giving examples using all three languages, and I think the context and cadence will make it clear which language is being spoken.

The game "Papa says" would go something like this:
Christian and his mother would be talking in Hungarian.

Mother: (In Hungarian) Nem szabad!

Christian: Papa says?

Mother: Papa says "You aren't allowed to do that!"

Christian: Normi sagt?

Mother: Normi sagt "Du darfst daB nicht tun!"

Or:

Mother (In Hungarian): Jaj! krumplit kell foznöm!

Christian: Papa says?

Mother: Papa says "Oh-oh! I have to cook some potatoes!"

Christian: Normi sagt?

Mother: Normi sagt "Ach! Ich muB Kartoffeln kochen!"

All of these interchanges took place with the mother very patiently explaining and translating. This seemed to satisfy Christian momentarily but soon another translation request would begin:

Mother: (in Hungarian) - Gyere be! Itt vagyok a konyhában!

Christian: Papa says?

Mother: Papa says, "Come on in! I'm in the kitchen!"

Christian: Normi sagt?

Mother: Normi sagt, "Komm herein! Ich bin in der Küche!"

It was very apparent that Christian considered this translation to be a kind of game, and researchers have noted this to be true of many young bilingual children who only later realize its social role.

When he was nearing the age of three, he began to employ a new and even more interesting technique to keep the conversation going between himself and his mother. These were elicitations of predictions of possible outcomes for hypothetical situations. These seemed to delight him particularly.

Christian and his mother were out on the patio one afternoon. She was hanging up clothes and he was playing in the yard. They were speaking English with one another, and at this point in his learning, moved smoothly between Hungarian and English, sometimes speaking one or the other as Christian wished. In this particular episode, Christian is poised precariously on the edge of the stone stairs in the yard.

Mother: Get away from the stairs stairs...you may fall.

Christian: But if you...?

Mother: But if you are careful, I'll be very happy.

Christian: But if you...

Mother: But if you hurt yourself, you'll cry.

Pause. Silence....

Christian: Aber wenn?

Mother: Aber wenn du weinst, dann bin ich auch traurig.

Christian: Aber wenn?

Mother: Aber wenn du brav bist dann wirst du nicht weinen müssen.

Christian: Aber wenn...

Mother: Aber wenn du dir weh tust dann bist du selbst Schuld.

Short pause...Quietly.

Christian: De ha? ("But if" in Hungarian)

Mother: De ha szótfogatsz, akkor nem lesz semmi bajod.

Christian: De ha?

Mother: De ha leesel a lépcsőn akkor nagy kiabálás lesz.

The paradigm for all three languages was not always complete, and often there were long pauses during which we forgot about the translations in progress. At other times they came in rapid succession with hardly enough time to think up answers to sometimes absurd "but if..." situations.

Another example:

Mother: **Christian!** Don't take the sand out of the sandbox!

Christian: But if...

Mother: But if you take the sand out of the sandbox you'll just have to put it all back again.

Christian: But if...

Mother: But if you play nicely, I'll be very happy.

Christian: Aber wenn?

Mother: Aber wenn du den Sand aus dem Sandkasten nimmst, dann muB du das ganze einfach wieder zurücktun.

Christian: Aber wenn?

Mother: Aber wenn du brav bist, dann bin ich froh.

Pause...Pause...LONG pause...

Just when you think you've escaped, quietly from the corner of the

yard...

Christian: De ha? (meaning but if...)

The mother is preoccupied and doesn't notice that Hungarian was left out of the paradigm.

Christian: DE HA?

The mother is looking for something and doesn't hear the child. Christian is now genuinely getting upset:

Christian: DE HA, DE HA, DE HA????!!!!

When Christian would receive responses there were often long pauses during which Christian seemed quietly to be digesting information given to him. Very often one could hear him repeating things to himself, rehearsing what had just been said to him. At other times the repetition was just once or fragmentary or barely audible. And sometimes the repetitions were fast and furious and loud, mechanically and quickly drilled up to five times in a row. Christian had never been told to repeat what was said to him, so this was his own invention for his own gratification. It should be pointed out that the mother's answers were actually expansions of what was said in the other language. Very often translating was going on from language to language as the possible imaginary occurrences were explored by mother and child. But the predictions would often branch off from each other, expanding the possibilities.

It has been observed by Slobin (1968) and others that children's imitations of their parent's expansions of their own utterances are often grammatically more advanced than their free speech in contrast to their other imitations which are not more advanced. Other research such as that done by Ruth Weir (1962) shows that many children go through a sort of linguistic drill before falling asleep at night. Christian loved to do such linguistic drills, but it was obvious that it was more than just mere repetition. At times he would laugh outright in the midst of a practice session, as though something funny had occurred to him.

The third strategy used by him to elicit linguistic input and possibly simply for entertainment and pleasure was the game of "fill in the blank." This game originated from the time when his mother first began to read or verbally relate stories to him. Her manner of involving him was to begin a story and point to him when it was his turn to supply the missing word. For example:

Mother: Once upon a time there was a little girl with yellow, yellow hair and her name was...

Christian: Goldilocks!

Mother: One day Goldilocks went for a walk and saw a little...

Christian: house.

Mother: So she decided to go up and knock on the _____

The mother went through the same process when singing songs with Christian or when she read a book to him. He enjoyed this immensely and listened keenly to his turn coming up. This same

mode of communication was later used by him to elicit a story and to ask questions. Rather than asking questions directly, he turned all of them into "fill in the blank" propositions.

After I had already left Germany and Christian was close to his fourth birthday, Judy sent me a tape of Christian and her reading a book together. When I had left one year earlier, Hungarian and English had been Christian's dominant languages with German starting to expand its domain. The recording was of Christian "reading" his way through the book by asking for information in tiny increments bit by bit unraveling the story. Christian posed questions to his mother in the form of declarative statements with a rising intonation and a blank to be filled in. For example:

Christian: The mother is in the...?
 Mother: The mother is in the kitchen.
 Christian: The father is in the..?
 Mother: The father is in the living room.
 Christian: The father is...?
 Mother: The father is reading a newspaper.
 Christian: The mother is...?
 Mother: The mother is in the kitchen cooking supper.
 Christian: The supper is...?
 Mother: The supper looks like a roast and some potatoes.

There was practically no end to this kind of questioning. The tape was 45 minutes of a steady stream of questions like this. The mother was indefatigable.

This verbal exchange between parent and child probably plays an important role in fostering language development. The mother's speech directed toward Christian was simpler than normal adult-adult speech, but it was still somewhat above the level of Christian's own productions, which challenged his learning ability. The most important role is that of the child himself. He asks what he feels a need to know at the moment. His emerging linguistic systems must develop so as to reflect what he would like to say. How and when the small child formulates hypotheses about the language and acts as a small linguist trying to map more and more complex concepts onto the linguistic code is still largely a mystery. However, it can be an extremely laborious task for the linguistic partner, especially if he/she is alone without the support of a speech community. It extracts a real price in terms of time and patience...a commodity many might not be prepared to invest.

References

- Slobin, D.I. Imitation and grammatical development in children.
 In N.S. Endler, L.R. Boulter, and H. Osser (Eds.),
Contemporary issues in developmental psychology. New York:
 Holt, Rinehart and Winston, 1968. pp. 437-443.

Weir, R. Language in the crib. The Hague: Mouton, 1962.

XII

COMPUTATIONAL LINGUISTICS

AN EXPERIMENTAL STUDY OF ON-LINE LEXICAL PROCESSING

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Introduction

Language processing is a subject of interest for researchers in such diverse areas of study as psycholinguistics, aphasiology and Artificial Intelligence. In psycholinguistics, the emphasis has been mostly on syntactic processing, resulting in the relative neglect of lexical processing; a rather unfortunate situation given that the goal of language processing is the recovery of meaning, and that words not syntactic structures are the primary carriers of meaning.

In the experimental study reported here we address a specific problem in lexical processing -- the role of the phonological retention system, a part of Working Memory, in accessing semantic information in the mental lexicon. Since our experiment involves the psychological notions of Working Memory (WM), Short Term Memory (STM), and the notion of processing resources, all of which are outside the usual scope of interest of linguists, these will be discussed first.

The Working Memory

The concept of Working Memory, assumed to be the memory resource used in any on-going mental tasks such as language processing or reasoning, evolved from an earlier concept of STM. STM is a theoretical construct derived from simple experiments in which subjects have to memorize and, after a short interval usually filled by some other task, recall a list of digits, letters or sometimes words. An important feature of STM is the assumption that it operates on the basis of a phonological code, which may be either articulatory or acoustic (Conrad, 1964; Baddeley, 1966; Hintzman, 1967; Wickelgren, 1969). Another feature of STM is its limited capacity. This limitation is defined either in terms of the number of chunks or slots, e.g. 7 ± 2 (Miller, 1956) or in terms of the fixed duration of speech, e.g. 1.5 - 2 sec. (Schweickert & Boruff, 1986).

The concept of WM was introduced by Baddeley and Hitch (1974), following a series of experiments involving a concurrent memory load paradigm. While retaining some of the features of STM they reformulated it to cover a larger array of tasks. While researchers

within the framework of STM were cautious to limit their claims to the narrowly defined situations corresponding to the experimental tasks of free or serial recall, Baddeley and Hitch conceived of their WM construct as a general memory system underlying natural information processing situations such as reasoning or language comprehension. One of the features of STM retained in the new WM system was the importance attributed to the rehearsal-like retention mechanism. Baddeley & Hitch incorporated into their vision of WM a special storage device, termed at first, on the analogy with the articulatory rehearsal, either "rehearsal or response buffer" (Hitch, 1980, Baddeley et al., 1981) or, later, "articulatory loop" (Baddeley, 1986). It is also referred to as phonological store (Baddeley & Salame, 1986) or an auditory short term store (Frick, 1988). Since there is some controversy as to whether the code used in the buffer is articulatory or acoustic, we will refer to it as 'phonological'. To avoid an implication that there is a specific structure involved we will use the term 'phonological retention' which implies only the existence of a process and not a structure.

An important characteristic of WM is the notion of limited processing resources. WM is said to govern some STM-like storage resources (here referred to as phonological retention) and some general processing resources. The two are to some extent independent; Baddeley & Hitch (1974) observed that the subjects in their experiments were able to retain 2-3 digits or words without any deterioration of their higher level cognitive performance. (Other researchers give slightly different estimates of the WM phonological retention capacity but the estimate is usually smaller than the 7 items estimated for STM.) Storage and general processing share the remaining processing resources and trade them off according to the demands of the situation.

The phonological retention and lexical processing

The limited capacity for holding unrelated items appears to be a very important constraint on the lexical processing system. Hypothetically, whenever the listener is unable to access the lexical entries corresponding to the words adjacent in the string of speech and establish what semantic/syntactic bond was intended by the speaker for these items, he/she is likely to have to hold on to them as if they were meaningless syllables or digits. According to the STM/WM research, the listener has to hold these items in a phonological retention buffer. To verify that, indeed, the phonological buffer plays a crucial role in

lexical access and interpretation we undertook the study reported here.

An additional motivation for our decision to select phonological retention as a variable relevant for lexical processing came from the research done on aphasia. Several studies in this area demonstrated that aphasic impairment of language production and comprehension is usually accompanied by a STM deficit (Goodglass, Gleason, and Hyde, 1970; Heilman, Scholes, and Watson, 1976; Locke and Deck, 1978; Rothi and Hutchinson, 1981; Ostergaard and Meudell, 1984).

Rationale of the experiment

The experiment was designed to answer two specific questions about phonological retention:

1/ Does phonological retention play a role in lexical processing?

2/ Is the role of phonological retention uniform across all vocabulary items or is it more important for some words than for others?

We decided to obtain some measurement of the importance of phonological retention in the lexical access process by introducing phonological similarity into the experimental sentences. The sentences containing target words were constructed in such a way that the target word -- the noun in the subject position -- was phonologically similar to the immediately following verb. We reasoned that if the listener had already processed the noun into some semantic representation by the time he/she had to start processing the verb, he/she should not be bothered by similarity and should recall the target noun correctly. If, on the other hand, he/she was still processing the noun -- had not developed a unique semantic trace for this word in his/her WM -- then upon hearing the phonologically similar verb, he/she was likely to lose the phonological trace for the target and be unable to recall it later.

In order to answer the second question, i.e. whether the importance of phonological retention depends on the kind of vocabulary item being processed, we used words maximally varied in their assumed ease of interpretation. The assignment of nouns to the categories of easy-to-interpret and difficult-to-interpret words was based on metalinguistic judgments of a group of subjects. For the reasons which will be explained later, the ease-of-interpretation was operationalized as 'specificity'.

In general, we expected that:

1/ there would be negative effect of phonological interference on target recall in the phonologically similar condition as compared with the phonologically

dissimilar condition;

2/ the effect of phonological interference, as shown by recall, would be greater for the non-specific words which are difficult to process into a semantic representation and require the extended support of the phonological form than for the specific words which are easy to process into a semantic representation and do not require the extended support of the phonological form.

In summary, we expected that the error rate on recall in the phonologically similar condition should be sensitive to the ease with which a word is interpreted and to its dependence on the phonological retention.

The selection of the experimental material

There is a variety of lexical variables that can be found in linguistic and psycholinguistic research: concreteness (e.g. Kroll & Merves, 1988), imagery (e.g. Paivio, 1971), polysemy/ambiguity (e.g. Lyons, 1977, Daneman & Carpenter, 1983), generality/hyponymy (e.g. Anderson et al., 1976); to mention just the semantic ones. All of them are highly correlated (Spreen & Schulz, 1966, Paivio et al. 1968; Gilhooly and Logie, 1980). The reason for that, we believe, is that although some of the subjects acting as raters are able to make the fine distinctions required by the instructions and distinguish, for example, between concreteness and imageability, most of them, in fact, respond on the basis of their intuitions about one global linguistic variable which is ease-of-interpretation. Clearly, whether standing alone or in a proper sentence context, concrete, imageable, unambiguous/monosemous or specific/basic terms are more easily interpretable than, respectively, abstract, non-imageable, polysemous/ambiguous or general/hyponymic terms.

Probably every language has a set of vocabulary items whose primary reference area are words, utterances and ideas. For example, English has items: 'concrete', 'specific', 'precise', 'concise', 'to-the-point', 'accurate', 'clear'. Other languages carve the same semantic field differently. For example, the Polish words 'konkretne', 'określone', 'jasne', 'zwięzłe', 'ściśle', 'precyzyjne', 'wyraźne' do not correspond one-to-one with the English counterparts. The very existence of these meta-words in the lexicon of a language proves that its speakers have to make judgments about the ease-of-interpretation of words or utterances in their daily linguistic interactions and are likely to possess very general linguistic intuitions about the structure of their lexicons.

When selecting the lexical variable to be used in our experiment in order to test the second question, i.e. whether the importance of phonological retention varies with the type of vocabulary, we decided to chose specificity as our basic term. This term, we believe, taps the most general intuitions the speaker has about the structure of his lexicon.

We view 'specificity' as a psycholinguistic variable based on the information processing characteristics of words. It can be defined as the degree of stability of the meaning of a word across contexts and denotations and thus its ability to convey information. There seem to be at least two components of specificity. One is referential -- the nearness to perceptual and, possibly also, emotional experience. The other is distributional -- the compactness vs. distribution of possible denotations. The first can be illustrated with the pair of words 'layer' and 'level'. While 'layer' can easily take on physical, non-metaphorical meaning, 'level' does so less easily. Another example is 'proposal' vs. 'theory'. While proposals tend to be personal, expressed on paper, and non-divisible, all of which correlate with specificity, theories can be collaborative, do not have to be externalized, and can be divided into component theories. The second, distributional component of 'specificity' can be illustrated with the words 'chip' vs. 'crumb'. Both 'chip' and 'crumb' refer primarily to physical objects. However, while 'crumb' is most frequently used in reference to bread crumbs, 'chip' can have a variety of physical realizations, e.g. computer chips, steel chips, wood chips, chocolate chips, potato chips, etc. There is likely to be more to 'specificity' than just the referential and distributional components; however, further discussion is not possible within the scope of this paper.

The speakers of a language are usually quite good in tagging words as either specific or non-specific. In order to confirm our own intuitions about the set of words selected for the experiment, we asked 11 subjects to assign words to either a Specific or a Non-specific category. The subjects read the following instructions: "The English language has a very rich vocabulary. Different words have different meanings. Some words are specific, others are not. The word 'astronaut', for example, has a specific meaning while the word 'consultant' does not. The astronaut is always associated with one area of human activity - space exploration. The word 'consultant' can be associated with different scenarios or settings since there can be different kinds of consultants: family, financial or computing."

With the above rather vague instructions, which basically just encouraged the use of whatever untrained intuitions subjects may have about the specific/non-specific distinction, the subjects found it easy to make the judgments. There were 11 judges categorizing the words preselected by the experimenters to two extreme categories: Specific vs. Non-specific. Eighty-five percent of our words were categorized as either Specific or Non-specific by at least 7 out of 11 judges. The judgments of the remaining 15% of words were slightly less consistent. It is possible that the agreement might have been higher if we asked the subjects to compare words in pairs which, we believe, is a more natural metalinguistic task. For practical reasons, however, it was easier to use a forced-choice categorization task.

The experimental procedure

The experimental procedure involved two separate tasks. The first task, invented specifically for this study, was dubbed Delayed Repetition (DeRep). The subjects were instructed to listen to a list of sentences coming from a tape and to repeat the sentences during the 4 sec. of silence following each sentence. They were asked to wait two sentences at the beginning of the list before starting to repeat. Consequently, the repetitions were always delayed by one sentence relative to the presentation on the tape. The subjects spoke to a microphone connected to a second taperecorder.

Following the Repetition task, the subjects were asked to do a pencil-and-paper Cued Recall task. They were presented with a list of sentence fragments consisting of verbs and object nouns of the target sentences which they previously repeated in the Repetition task and were asked to fill in the blanked out subject nouns.

All sentences were of the same SVO structure. Each sentence was a description of a small event involving two people specified by their profession or some other characteristic. The sentences were as unrelated to each other as it was possible to make them while working with a narrowly defined field of nouns and verbs. The nouns were action, profession or other people-denoting terms, the verbs were interpersonal- action or attitude verbs.

The target sentences belonged to four types varied in terms of the value of the two experimental variables: Phonological Similarity and Specificity. Phonological Similarity/Dissimilarity was defined in terms of the presence or absence of identical phonemes in the first three segments of the subject and verb.

Specificity/Non-specificity was defined depending on whether the subject noun in the sentence belonged to the Specific or Non-specific category. Here are examples of the four types of sentences:

- NON-SPEC/SIMIL - The beginner believed the pilot.
- NON-SPEC/DISSIMIL - The spectator believed the pilot.
- SPEC/SIMIL - The balloonist believed the pilot.
- SPEC/DISSIMIL - The acrobat believed the pilot

As noted above, the materials used in the Cued Recall task are sentence fragments corresponding to the sentences in the Repetition task with the subject position empty.

Each verb-object fragment yields four different sentences (as shown in the examples above). In order to avoid repetition of lexical material given to one subject, four different lists of sentences were constructed and given to four groups of subjects. Overall, 56 subjects participated in the experiment, 14 per experimental list. The subjects were students at the University of Alberta who were native or near-native speakers of English. For each subject the experimental treatment was the same, as everybody was presented with sentences from all four types, but the experimental materials were slightly different as each group was presented with a different set of 12 target nouns. In addition to target sentences, each list contained 12 filler sentences. The targets and fillers were interleaved within the list so that no two target sentences occurred adjacent to each other. Also, the targets were cycled in order to keep the replicates of a given type evenly distributed throughout the list.

The following variables were balanced across the four experimental conditions (i.e., the four sentence types): 1/ sentence length, 2/ number of phonologically similar phonemes in the initial syllables of subject-noun pairs; 3/ word frequency. The sentence lengths balanced across the types varied between 8 and 11 syllables. The number of phonologically similar phonemes in the initial syllables of the phonologically similar noun-verb was always 2 out of the first 3 segments, and always included the first. Word frequency in the case of verbs and object nouns was controlled by using the same verbs and objects four times, each time with a different subject noun. In the case of subject nouns, which had to be varied as a result of the experimental manipulation, the frequency was controlled by keeping the cumulative frequency in each sentence type constant.

The results

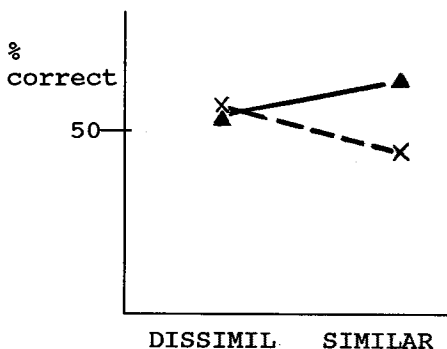


Figure 1. Delayed Repetition

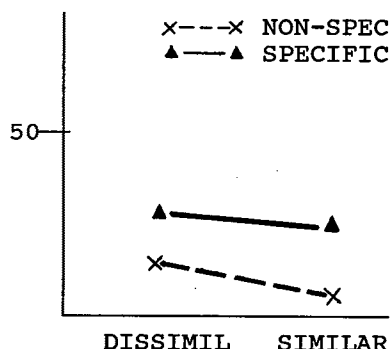


Figure 2. Cued Recall

According to the classification used in the statistical literature (Winer, 1971; Kirk, 1982), this experiment can be treated as a split plot design with two factors crossed (Similarity and Specificity) and one nested (List). Since the designs were analogical for the Repetition and Cued Recall tasks, two independent analyses of variance were performed. Since the main differences in results between the different conditions were in the repetitions or recalls of subject nouns, the main analysis was based on just these items. The responses were scored as either correct (1) or incorrect (0). For each subject the responses within each sentence type were added giving a measure of recall which varied between 0 and 3.

The results of the Repetition task are charted in Figure 1. In this task, Specificity main effect, $F = 7.17$, $p(1,52) < 0.025$ and Specificity X Similarity interaction, $F = 4.55$, $p(1,52) < 0.05$ were significant. There was no main effect of Similarity which is not surprising in view of the fact that there was a cross-over interaction of Specificity and Similarity.

In Cued Recall, charted in Figure 2, there was a Specificity main effect, $F = 23.79$, $p(1,52) < 0.001$ and a Similarity main effect, $F = 5.56$, $p(1,52) < 0.025$. There was also a List effect, $F = 5.46$, $p(3,52) < 0.005$, which is not unusual in a split plot design. The fact that there was no interaction between Specificity and Similarity in the recall data (a difference from the Repetition data) must be interpreted in view of the fact that there was a floor effect in the two non-specific types of sentences, which might have cut off

some of the potential low scores in these two types of sentences.

Interpretation

The following conclusions can be drawn from these results:

1/ The non-specific words are overall harder to recall. Considering that the specificity effect occurred not only in the Cued Recall task but also in the Repetition task, in which the time lapse between the presentation and recall was very short, it is very likely that the poor recall in both tasks resulted from the difficulty of initial access and interpretation rather than from unrelated retrieval problems.

2/ Considering that the recall in the Cued Recall task should reflect recall from semantic memory (as opposed to STM/WM), the fact that there was a phonological similarity effect in this task suggests that phonological similarity affected negatively the initial semantic processing, i.e. the lexical access and meaning integration processes.

3/ The fact that in Repetition the similarity effect was observed for the Non-specific and not for the Specific words, suggests that the latter were processed faster and the subjects were able to repeat using as a cue both the phonological and the semantic trace. (It can be speculated that the phonological trace, being shallower, was later lost due to time lapse revealing a Similarity effect also for the Specific words at the time of Cued Recall.)

In summary, the most important finding coming out of this study is that specific words are processed into some type of semantic information faster than non-specific words. In the case of the specific words, the lexical access and interpretation, i.e. the retrieval of semantic information and the finding of a referent, takes less time than in the case of non-specific words. In processing terms, this implies that specific words are less likely to require phonological buffering than non-specific words. In practice, this means that the meaning of the specific words is less likely to be lost in processing than the meaning of the non-specific words when the attentional resources are lowered.

Conclusion

In general, we would like to wrap up with a conclusion that lexical processing cannot be viewed as occurring word-by-word. Words are not processed on-line. They may be recognized on-line but they are accessed, interpreted and integrated off-line. Their interpretation proceeds at different speeds. Because of that, the informational input of some words becomes

integrated into the final sentence interpretation while input of other words might not. As there is usually a lot of redundancy and predictability in speech, one content word, like one fragment of a holographic picture, can often stand for a whole sentence. This, however, is not always the case -- novel subject matter or inappropriate lexical choices of a speaker may require that all or almost all words be accessed and interpreted to support comprehension.

References:

- Anderson, R.C., Pichert, J.W., Goetz, E.T., Schallert, D.L., Stevens, K.V., & Trollip, S.R. (1976) Instantiation of general terms. *J. of Verbal Learning and Verbal Behavior*, 15, 667-79.
- Baddeley, A.D. (1966) Short-term memory for word sequences as a function of acoustic, semantic, and formal similarity. *Quarterly Journal of Experimental Psychology*, 18, 362-365.
- Baddeley, A.D. (1986) *Working memory*. Oxford: Clarendon Press.
- Baddeley, A.D., & Hitch, G.J. (1974) *Working memory*. In: *Recent advances in learning and motivation*. Vol. 8, pp. 47-90. G. Bower (ed.) New York: Academic Press.
- Baddeley, A.D., Eldrige, M. & Lewis, V. (1981) The role of subvocalization in reading. In: *Quarterly J. of Experimental Psychology*, 33A, 439-454.
- Baddeley, A.D. & Salame, P. (1986) The unattended speech effect: perception or memory? *J. of Experimental Psychology*, 12, 4, 525-529.
- Conrad, C. (1964) Acoustic confusions in immediate memory. *British Journal of Psychology*, 55, 75-84.
- Daneman, M. & Carpenter, P.A. (1983) Individual differences in integrating information between and within sentences. *J. of Experimental Psychology: Learning, Memory, and Cognition*, 9, 561-584.
- Frick, R.W. (1988) Issues of representation and limited capacity in the auditory short-term store. *British Journal of Psychology*, 79, 213-240.
- Gilhooly, K.J. & Logie, R.H. (1980) Age-of-acquisition, imagery, concreteness, familiarity, and ambiguity measures for 1944 words. *Behavior Research Methods & Instrumentation*, 12(4), 395-427.
- Goodglass, H., Gleason, J.B. & Hyde, M.R. (1970) Some dimensions of auditory language comprehension in aphasia. *J. of Speech and Hearing Research*, 13, 595-606.
- Heilman, K.M., Scholes, R., & Watson, R.T. (1976) Defects of immediate memory in Broca's and conduction

- aphasia. *Brain & Language*, 3, 201-208.
- Hintzman, D.L. (1967) Articulatory coding in short-term memory. *J. of Verbal Learning & Verbal Behavior*, 6, 312-316.
- Hitch, G.J. (1980) Developing the concept of working memory. In: *New Directions in Cognitive Psychology*, G.L. Claxton (ed.). London: Routledge & Kegan Paul.
- Kirk, R.E. (1982) *Experimental design: Procedures for the behavioral sciences*. Monterey, Calif.: Brooks/Cole.
- Kleiman, G.M. (1975) Speech recoding in reading. *J. of Verbal Learning and Verbal Behavior*, 14, 323-339.
- Kroll, J.F. & Merves, J.S. (1988) Lexical access for concrete and abstract words. *J. of Experimental Psychology: Learning, Memory, and Cognition*, 12, 1, 92-107.
- Locke, J.L. & Deck, J.W. (1978) Retrieval failure, rehearsal deficiency and short-term memory loss in the aphasic adult. *Brain & Language*, 5, 227-235.
- Lyons, J. *Semantics*, v.1,2. (1977) Cambridge: Cambridge University Press.
- Miller, G.A. (1956) The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Bulletin*, 63, 81-97.
- Ostergaard, A.L. & Meudell, P.R. (1984) Immediate memory span, recognition memory for subspan series of words, and serial position effects in recognition memory for supraspan series of verbal and nonverbal items in Broca's and Wernicke's aphasia. *Brain & Language*, 22, 1-13.
- Paivio, A. (1971) *Imagery and verbal processes*. New York: Holt, Rinehart, & Winston.
- Paivio, A., Yuille, J.C. & Madigan, S. (1968) Concreteness, imagery and meaningfulness values for 925 nouns. *J. of Experimental Psychology*, 76, 1(2).
- Rothi, L.J. & Hutchinson, E.C. (1981) Retention of verbal information by rehearsal in relation to fluency of verbal output in aphasia. *Brain & Language*, 12, 347-359.
- Schweickert, R. & Boruff, B. (1986) Short-Term Memory Capacity: Magic number or magic spell? *J. of Experimental Psychology: Learning, Memory, and Cognition*, 12, 3, 419-425.
- Spreen, O. & Schulz, R.W. (1966) Parameters of abstraction, meaningfulness, and pronunciability for 329 nouns. *J. of Verbal Learning and Verbal Behavior*, 5, 459-468.
- Wickelgren, W.A. (1969) Auditory or articulatory coding in verbal short-term memory. *Psychological Review*, 76, 232-235.
- Winer, B.J. (1971) *Statistical principles in experimental design*. New York: McGraw-Hill.

A Computational Approach to the Representation of 'Prototypical' and 'Extended' Properties

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ABSTRACT

This paper proposes a way of representing some processes which have combinations of 'extended' participants. The computational representation of these combinations is approached with a lexicographic indication described in Webster's Dictionary, Zadeh's (1987) 'fuzzy set' and a metaphorical pointer.

I. The Current Dynamic System

The current system (Lee 1988a, 1988b) includes three phases (morphological, syntactic and semantic) in comprehending a given input sentence. The processes for morphological, syntactic and semantic decoding are performed by an algorithm which searches through dictionary-like structures set up between each pair of levels (Lamb 1985, 1987). That is to say, the system recognizes the essential structural differences between the linguistic information and the computer procedure. Thus, the linguistic information is not incorporated into the program itself. This system architecture is shown in Figure 1. The given English or Korean sentence first flows into the morphological decoder, and morphological analysis (i.e. classification of roots and suffixes) is completed with the aid of Morphemic Supplements I (and II). The result of the morphological analysis is then passed into the next phase, a syntactic decoder which produces (a) syntactically parsed tree(s) according to Lexemic Supplements I and II. Finally, the syntactically parsed tree goes up to the semantic decoder which identifies the organization of a proposition: Process, P-1, P-2, Tense, Aspect, etc. In order to represent concepts of a proposition, a provisional conceptual representation is checked to see if the connection between a process and its participants is conceptually well-formed. A proposition which is conceptually ill-formed (e.g. %I ate the table) is rejected after comparison of the semantic properties of participants with those that a process presupposes.

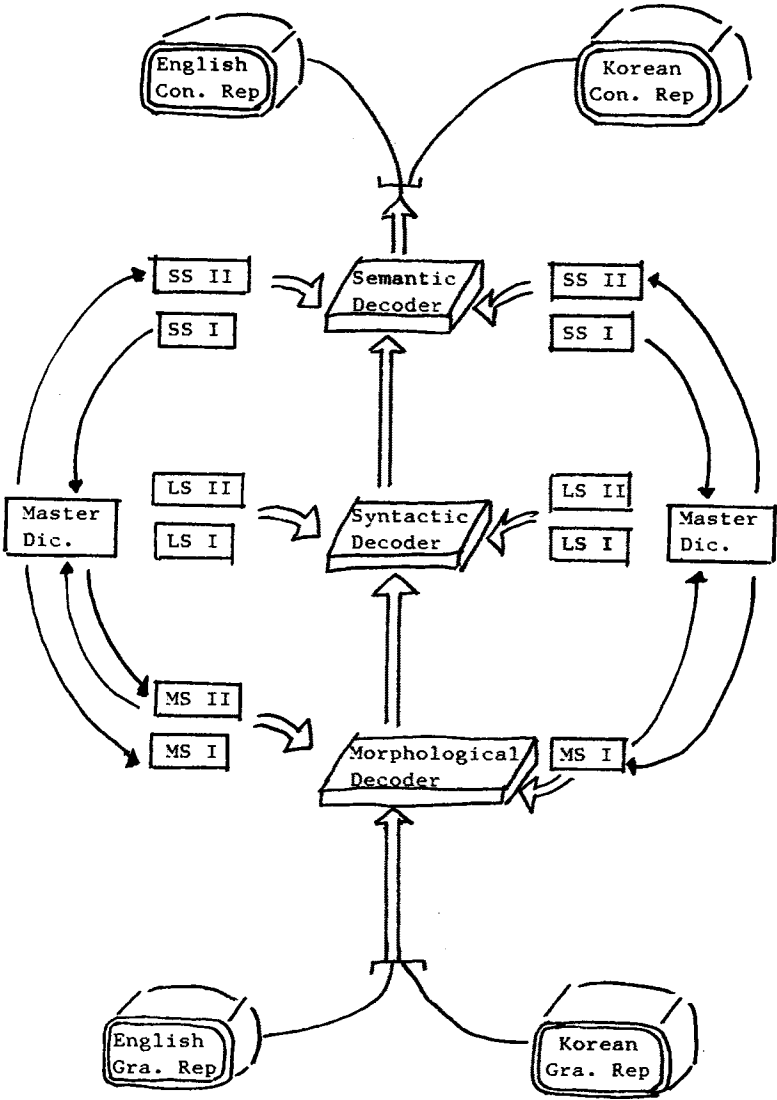


Figure 1 (The System Architecture)

- ⇒ Data Flow
- Dictionary Interaction

II. Extension of the Current System

Based on the theoretical assumption that each process has its own tactic properties (Lamb 1987, Ikegami 1980, Hayes 1978), the current system checks only 'normal' or 'prototypical' arguments that a verb would take as participants. For example, the system accepts a P-1 which is 'Liquid' for the English verb 'flow' since the verb normally takes a P-1 with the property 'Liquid.' The participant, however, can also have the property 'Abstract' (e.g. Ideas are flowing, Conversation flows smoothly, Wealth flows from the industry to economy, etc), or the property 'Human Being' (e.g. The crowds flow), or the property 'Hair' (e.g. Her hair flows over her shoulder). To take an example from Korean, the system accepts a P-1 which is 'Human Being' or 'Animal' and a P-2 which is 'Edible-Solid' for the verb mek- 'to eat.' These normal combinations come from the general semotactics of the verb mek- 'to eat'; The process mek- presupposes a participant that has the property 'Animal' or 'Human Being' as the P-1 and a participant that has the property 'Edible-Solid' as the P-2. We can, however, find some sentences that have the property 'Abstract' as the P-2 (e.g. na-nun kkwum-ul mek-ko sa-n-ta 'I keep on dreaming,' na-nun yok-ul mek-ess-ta 'I got blamed,' 'ku-nun nai-lul manhi mek-ess-ta 'He is quite old'). In order to accept these examples, semotactic codes for a specific verb need to be extended.

The purpose of this paper is to propose a way of implementing some extended semotactics of a verb. The extended semotactic codes of a verb are indicated with a lexicographic mark (e.g. 1, 2, 3, etc.), compatibility value (e.g. 1, 0.8, 0.6, etc.) and a metaphorical pointer (i.e. ↑) at the level of conceptual representation.

III. Algorithm for Implementing Extended Semotactics

A. Lexicographic Indication

In the previous section, some examples with 'extended' interconnections between a verb and (a) participant(s) were shown (e.g. Ideas are flowing, Crowds flow, etc.). In this section, we take an example with English verb have in order to explain its usage. Webster's Dictionary describes meanings of have as follows, in this order:

- 1) 'to possess' Ex. I have a book.
- 2) 'to feel compulsion, obligation in regard to ___'
Ex. I have a letter to write.
I have a task to do.

- 12) 'to bear, beget' Ex. She is going to have a baby.
 13) 'to eat' Ex. I am going to have bananas.

This paper attempts to represent the participants, whether prototypical or extended, by means of sets. Then S1 and S2 for the English verb 'have' can be represented as shown in Figure 2.

<u>have</u>	S1	S2
	HB	Con. Obj
	HB	Abstract
	.	.
	.	.
	.	.
	HB	HB
	HB	Edible

Figure 2

To this pair of sets, as a first approximation to be revised, let us assign another set (S3) as a lexicographic indication in order to distinguish the degree of usage. If the usage is designated as the 'first' meaning in Webster's Dictionary (Eng.)/Great Korean dictionary (Kor.), it is indicated as '1.' If the usage is designated as the 'second' meaning, it is indicated as '2.' If the usage is designated as the 'third' meaning, it is indicated as '3.' Figure 3 shows this modification.

<u>have</u>	S1	S2	S3
	HB	Con. Obj	1
	HB	Abstract	2
	.	.	.
	.	.	.
	.	.	.
	HB	HB	12
	HB	Edible	13

Figure 3

The Cartesian product of the property sets S1, S2 and S3 for the English verb have is:

$$S1 \times S2 \times S3 = \{(HB, \text{Con.Obj}, 1), (HB, \text{Con.Obj}, 2), \\ (HB, \text{Con.Obj}, 3), \dots (HB, \text{Abst}, 1), \\ (HB, \text{Abstract}, 2), \dots (HB, HB, 12), \\ \dots (HB, \text{Edible}, 13)\}$$

Not all of the members of the Cartesian product of $S_1 \times S_2 \times S_3$ for the English verb have can be satisfactorily served as semotactic codes. The combinations of P-1 and P-2 properties considered in this paper ((HB, Con.Obj), (HB, Abst), . . . (HB, HB), (HB, Edible)) have different lexicographic indications, i.e. semotactic code (HB, Con.Obj) should be indicated as '1,' semotactic code (HB, Abst) should be indicated as '2,' semotactic code (HB, HB) as '12,' etc. The set of possible semotactics considered in this paper is therefore constituted as

$$R(\text{have}) = \{(\text{HB, Con-Obj}, 1), (\text{HB, Abst}, 2), \dots \\ (\text{HB, HB}, 12), (\text{HB, Edible}, 13)\}$$

Relation (R) is a mathematical expression of a set of semotactic codes. This relation can be interpreted by saying 1) semotactic code (HB, Con-Obj) is indicated as the primary meaning in Webster's Dictionary, 2) semotactic code (HB, Abst) is indicated as the secondary meaning in Webster's Dictionary, etc.

As demonstrated by this example, we can constitute a class of semotactic codes for a specific verb with different indications (e.g. 1, 2, 3, etc.) of membership. This constitution is made by assigning set 3 to (an) existing property set(s) on the basis of usage defined in Webster's Dictionary (Eng.)/Great Korean Dictionary (Kor.).

B. Fuzzy Sets

The first approximation of assigning lexicographic indications based on order in Webster's Dictionary can break down since there is no one-to-one correspondence between the order in the Webster's Dictionary and the importance of usage. That is the meaning described as the secondary or the tertiary meaning in Webster's Dictionary is not always considered as less important than the primary meaning. In order to revise the first approximation, we assign different grades to each semotactic code using the notion of fuzzy sets.

A fuzzy set is defined as "a class of objects with a continuum of grades of membership" (Zadeh 1987:29). Such a set is characterized by a membership function which assigns to each object a grade of membership ranging between zero and one. The conventional interpretation of the statement 'John is young' is that John is a member of the set which includes young men. However, considering that the class of young men is a fuzzy set, that is, there is no sharp transition from being young to not being young, a subjective indication can be assigned to the numerical ages. For example, the compatibility value of the numerical ages 22, 28 and 35 with the fuzzy set labeled 'young' might be 1, 0.7, and 0.2 respectively. The notion of compatibility refers to a subjective indication of the extent to which the above age values fit one's conception of the label

'young.'

As an application of the notion of fuzzy sets, a set of semotactic codes can be constituted with different grades of membership. As with fuzzy sets, a grade of membership ranging between zero and one is assigned as a subjective indication. In the determination of semotactic membership in the set for a verb, there is no sharp transition from being an exact member to not being an exact member of the set. This gradual transition can result from an inescapable phenomenon in natural language, i.e. the metaphorical senses of the sentence, contextual or cotextual information. For example, the semotactic code (HB Ed-Sol) for the Korean verb mek- 'to eat' can be given a compatibility value of '1' while the semotactic code (HB Abstract) can be given a compatibility value lower than '1,' e.g. 0.8, 0.6. (because of the unusual combinations possible between the process mek- and its participants). Let us recall the description of meanings of the have in page 3 and form a set of semotactic codes for the verb as shown below:

$R(\text{have}) = \{(\text{HB}, \text{Con.Obj}), (\text{HB}, \text{Abst}), \dots (\text{HB}, \text{HB}), (\text{HB}, \text{Edible})\}.$

Each member of the set is not given the same weight or the same consideration as a compatibility value. The degree of weight or consideration can vary according to frequency of use. The order described in Webster's Dictionary, however, is not necessarily based on usage frequency. Therefore, the order given in the Dictionary does not play a decisive role in assignment of the compatibility value to each member.

Even if the semotactic code (HB, Abst) for the verb have is established for the secondary meaning (e.g. I have a task to do, I have a letter to write, etc.) as expressed in the Dictionary, it does not deserve to receive the same weight as the semotactic code (HB, Edible). It is less frequent usage than I had some apples. Similarly, the semotactic codes (HB, HB) and (HB, Edible) are established for the twelfth and the thirteenth meanings, respectively. Even though they come far down the list as meanings of have in the Dictionary, they cannot receive very low compatibility values such as 0.4 or 0.2. This is because usages such as She had a baby or She had some rice are very common in everyday conversation and are widely accepted expressions. Therefore, the semotactic codes (HB, HB), (HB, Edible) are given the compatibility value of 0.8 in this paper as a subjective indication in spite of the fact that they come late in the Dictionary listing of meanings.

In order to measure the different grades possible for a semotactic code, let us assign Set 4 to the existing sets. (S1:P-1 Property, S2:P-2 Property, S3:a Lexicographic Indication). Figure 4 shows this modification.

<u>have</u>	S1	S2	S3	S4
	HB	Con.Obj.	1	1
	HB	Abst.	2	0.8
	.	.	.	0.6
	.	.	.	0.4
	.	.	.	0.2
	HB	HB	12	0
	HB	Edible	13	

Figure 4

The Cartesian product of S1, S2, S3 and S4 is:

$$S1 \times S2 \times S3 \times S4 = \{(HB, \text{Con-Obj}, 1, 1), (HB, \text{Con-Obj}, 1, 0.8), \\ (HB, \text{Con-Obj}, 1, 0.6), \dots, \\ (HB, \text{Abst}, 1, 1), \dots, (HB, \text{Abst}, 2, 1), \\ (HB, \text{Abst}, 2, 0.8), (HB, HB, 12, 0.8), \\ \dots, (HB, \text{Edible}, 13, 0.8), \dots\}.$$

Of the numerous members of this product, only a few will fit our concept of semotactic codes for have, and only these members are implemented, ignoring the rest of the product $S1 \times S2 \times S3 \times S4$.

$$R(\text{have}) = \{(HB, \text{Con-Obj}, 1, 1), (HB, \text{Con-Obj}, 2, 1), \\ (HB, \text{Abst}, 2, 1), \dots, (HB, HB, 12, 0.8), \dots, \\ (HB, \text{Edible}, 13, 0.8)\}$$

As demonstrated by the examples, we can constitute a set of semotactic codes for a specific verb with different grades of membership (e.g. 1, 0.8, 0.6, etc.) in addition to different lexicographic indications. This set of codes is made by assigning Set 4 to the existing sets (S1, (S2), S3) based on frequency of use.

C. Metaphorical Expressions with Metaphorical Pointers

This section shows that the strategy of assigning the compatibility value in addition to the lexicographic indication cannot deal with metaphorical expressions, e.g. Ideas are flowing, Conversation flows smoothly, Wealth flows from the industry to economy, etc. The reason that participants like ideas, conversation, wealth or hair can be associated with the process flow is not because of their own 'prototypical' properties 'HB(Mass)' and 'Abstract' but because of their 'extended' properties 'Liquid.' Similarly, the reason that the participant time can be associated with various processes like waste (e.g. You're wasting my time), save (e.g. You can save your time), spend (e.g. How do you spend your time these days?), borrow (e.g. He's living on borrowed time) or use (e.g. You don't use your time properly) is because the participant 'time' is

treated as 'money,' not as 'sequential relations.' Therefore, it is not possible to assign precise quantity to semotactic codes which are based on the applied concept.

In a way of dealing with metaphorical expressions in the process of comprehension, we distinguish the semotactic codes of process into two types--regular and metaphorical, and the distinction is made by using an upward arrow '↑.' Let us take some dictionary entries as an example. The associated participants with the process flow and the semotactic codes for the process will be entered as follows:

```
ideas \ ↑liquid
crowds \ ↑liquid
conversation \ ↑liquid
hair \ ↑liquid

flow(<liquid>) \ flow
flow(<M↑-liquid>) \ move freely
```

'↑' is read as 'like' or 'treated as.' 'M↑' is read as 'metaphorically like.' 'M↑' is called a 'metaphorical pointer.' The entry 'conversation \ ↑liquid' is read as 'conversation is like liquid' or 'conversation is treated as liquid,' and the entry 'flow(<M↑-liquid>) \ move freely' is read as 'the process flow requires a participant which is metaphorically like liquid.'

IV. Rationale for Lexicographic Indication, Compatibility Value and Metaphorical Pointer

A question might be raised about the need to indicate the degree of mutual relationship between a process and its participants at the level of conceptual representation. If the goal of the system is to comprehend a given input sentence, why not simply extend the number of semotactic codes for a process without any indication? The reason is that the indication by a lexicographic number, compatibility value and a metaphorical pointer is for later application, i.e. machine translation. In machine translation, a conceptual representation with a numerical indication higher than '1' (e.g. '5,' '6,' etc) or with a low compatibility value (e.g. 0.6, 0.4, 0.2, etc.) may require another semantic dictionary before the representation is passed to the target language. Also, the translation of the process can be postponed until a system searches through a dictionary, called the Master Dictionary, of the target language. A conceptual representation with a metaphorical pointer can be reanalyzed in the process of generation based on the properties of participants in source language. Alternatively, a conceptual representation with a high lexicographic number indication, a low compatibility value or a metaphorical pointer could be post-edited by human beings.

ABBREVIATIONS

Abst: Abstract
 Con-Obj.: Concrete-Object
 Ed-Sol: Edible-Solid
 HB: Human Being
 P-1: Participant-1
 P-2: Participant-2

REFERENCES

- Hayes, P. 1978. Semantic Markers and Selectional Restrictions. Computational Semantics, ed. by E. Charniak and Y. Wilks. New York: North Holland Publishing Co. pp. 124-147.
- Ikegami, Y. 1980. On some Categories for Describing the Semotactic Structure. In James E. Copeland and Philip W. Davis (eds). Papers in Cognitive-Stratificational Linguistics. Rice University Studies 66-2. Houston, Tx: Rice University. pp. 59-74.
- Lamb, S. 1985. Information and its Representation in English Texts. Computing Power and Legal Reasoning, ed. by Charles Walter. 144-55. West Publishing Co.
- . 1987. Notes on Dynamic Grammar. MS.
- Lee, C. I. 1988a. A Stratified Automatic System--Illustrated with Korean and English. The Fourteenth Lacus Forum 1987. pp. 547-562.
- . 1988b. A Dynamic Model of Comprehension with Applications to Korean and English. Ph.D Dissertation. Rice University. Hanshin Publishing co.
- Zadeh, L. 1987. The Concept of a Linguistic Variable and its Application to Approximate Reasoning-I. Fuzzy Sets and Applications--Selected Papers by L.A. Zadeh. Ed. by R.R. Yager, S. Ovchinnikov, R.M. Tong & H.T. Nguyen. pp. 219-270.



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